

Attachment 1



**Seattle Public Utilities  
2018-2020 Water Rate Study**

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## PREFACE - STRATEGIC BUSINESS PLAN COMPARISON

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The 2018-2023 Strategic Business Plan Update sets a six-year rate and service path for Seattle Public Utilities, with a built-in three-year review and update. As of the writing of this 2018-2020 Water Rate Study, the Seattle City Council has yet to act on the Strategic Business Plan Update. The expectation is that the Council will review and possibly revise the Plan, then adopt a resolution endorsing the Plan in August 2017.

As the Strategic Business Plan Update is not yet endorsed by Council, this section of the Water Rate Study will compare the proposed 2018-2020 water rate and service path in the Rate Study to the Executive-proposed Strategic Business Plan Update.

Nearly all the technical, financial, and service level assumptions in the Strategic Business Plan Update are maintained in this Water Rate Study. This is not surprising, as the Plan and the Study were developed at nearly the same time.

However, one significant financial assumption differs between the two documents. Revenues assumed from 22 wholesale customers have been updated with the recent completion of a wholesale rate study, lowering the revenues needed from retail customers. See Section 3.4.1 for more detail on wholesale revenues.

**Table P-1** shows the changes to wholesale revenue assumptions.

**Table P-1  
 Change in Wholesale Revenue Assumptions**

(\$1,000's)	2018	2019	2020	2021	2022	2023
Strategic Business Plan Update	63,089	52,567	53,731	56,577	56,744	56,707
Water Rate Study	67,353	57,287	58,815	60,594	61,120	62,394
Variance	4,264	4,720	5,084	4,016	4,376	5,688

**Table P-2** shows the impact of updated wholesale revenues on retail rates. As with the water rates in the Strategic Business Plan Update, the 2018-2020 retail rate path in Table P-2 provides a “smoothed” rate path over the three-year period. This rate “smoothing” addresses the Customer Review Panel request to limit rates spikes where possible.

**Table P-2  
 Comparison of Retail Water Rate Increases**

	2018	2019	2020	2021	2022	2023
Strategic Business Plan Update	3.5%	4.1%	5.2%	5.3%	4.1%	5.6%
Water Rate Study	3.0%	3.5%	4.0%	5.2%	4.2%	5.1%

## 1. EXECUTIVE SUMMARY

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The water system is financed through an enterprise fund of the City of Seattle that is wholly supported by rate and fee revenues related to water service. In any given year, these rates and fees must be sufficient to pay the total costs of the water system and meet adopted financial targets. This total cost is known as the **water system revenue requirement**. The majority of the water system's revenues are from direct service ("rates") revenues from wholesale and retail customers. Wholesale contracts determine the amount SPU charges for wholesale service in a given year. Thus, retail water rates and other revenues are the "balancing entries" that generate the difference between each year's total water system revenue requirement and wholesale revenues.

This study focuses on proposed retail water rates. **Chapter 1** provides an overview of proposed changes to the revenue requirement and their drivers, bill impacts, and projected financial performance. **Chapter 2** gives an overview of adopted financial policy targets used in the development of the revenue requirement. **Chapter 3** provides additional detail on the various components of the proposed revenue requirement, including a discussion of demand and the low-income rate assistance program. **Chapter 4** discusses how the proposed revenue requirement is allocated between different customer classes. **Chapter 5** presents proposed rates by customer class, as well as an overview of the rate design, or rate structure, for each class. The **Appendices** present additional supporting data.

The proposed retail rates support increases to the **retail rate revenue requirement** of **\$10.7** million in 2018, **\$6.1** million in 2019, and **\$7.9** million in 2020, for a combined **\$24.7** million over the three-year period. **Table 1-1** presents the change in the retail revenue requirement and the monthly impact of proposed rate increases on typical residential customers and a sampling of general service customers. The proposed rates will affect customer bills to varying degrees depending on the volume of water used.

**Table 1-1**  
**Proposed Water System Revenue Requirement and Bill Impacts**

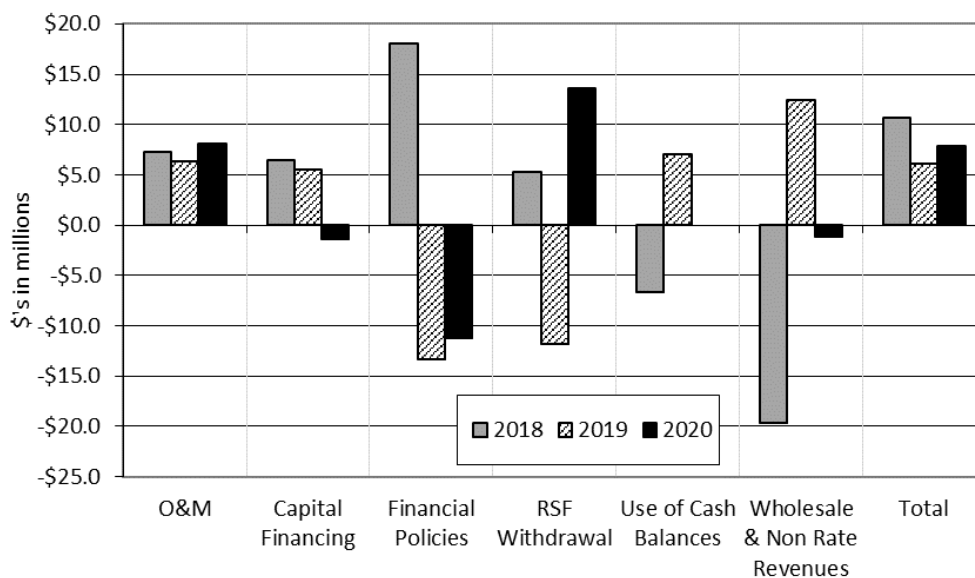
	2017*	2018		2019		2020	
	Adopted	Proposed	Change from 2017	Proposed	Change from 2018	Proposed	Change from 2019
<b>Retail Rate Revenue Requirement</b>	\$185,740,521	\$206,031,319	\$20,290,798	\$212,163,763	\$26,423,242	\$220,040,448	\$7,876,685
<b>Typical Monthly Water Bills</b>							
Residential	\$41.13	\$42.75	\$1.62	\$44.66	\$1.91	\$46.79	\$2.13
Convenience Store	\$99.80	\$102.65	\$2.85	\$105.90	\$3.25	\$109.85	\$3.95
Small Office Building	\$322	\$330	\$8	\$339	\$9	\$350	\$11
Apartment Building (90 units)	\$1,215	\$1,245	\$30	\$1,279	\$33	\$1,321	\$42
Medium Hotel	\$7,625			\$7,971	\$182	\$8,211	\$240
Large Industrial	\$18,454	\$18,834	\$380	\$19,266	\$432	\$19,841	\$575

\*2017 amounts are based on the 2016-2017 rate study.

The overall water system expenditure is expected to increase \$25.7 million between 2017 (the final year of the most recent rate study) and 2020. Proposed O&M spending increases of \$21.8 million account for the bulk of increased spending, with capital financing (debt service and cash financing) adding \$10.5 million over the three years. Offsetting those increases, spending related to financial policy requirements decreases by \$6.6 million by 2020.

Retail rate revenue requirement changes are comprised of multiple drivers. **Figure 1-1** breaks down the change in each retail revenue requirement driver by year. The drivers of a new rate are based on the change in each underlying assumption used to create the previous rate. Therefore, assumptions for 2018 are compared to assumptions used for 2017 rates in the 2016-2017 rate study, and 2019 assumptions are compared to 2018, and 2020 to 2019. See Chapter 3 for more detail.

**Figure 1-1**  
**Change in Water Fund Retail Revenue Requirement Drivers by Year**



The following section provides further description of the drivers presented in Figure 1-1. See Chapter 3 for further detail.

### **Base O&M (and Taxes)**

O&M has increased \$5.0 million between the 2017 rate study and 2018 due to updated growth assumptions in labor costs, city central costs, and investments identified in the SBP. Taxes increased \$2.3 million from the 2017 rate study amount.

### **Capital Financing**

Figure 1-1 shows the combined impact of *cash* and *debt financing* of the capital program on the revenue requirement for 2018-2020. The increasing capital program in 2018 and 2019 makes capital financing a revenue requirement driver in those years. Capital financing costs decrease in 2020, although they are still higher than the minimum target of 15 percent of annual CIP.

### **Financial Policies**

The Water Fund has four primary financial targets. Typically, rates are set to just meet all financial policies in each year. For this rate study, however, rates in 2018 and 2019 are set to smooth rate increases over the three-year path. As a result, additional revenue is generated in 2018 and 2019 which is then used to increase cash financing of the capital program. Debt service coverage is the binding policy target in 2020. See Chapter 2 for more detail on binding policy targets.

### **Revenue Stabilization Fund (RSF) Withdrawal**

Withdrawals from the RSF can be used to increase cash contributions to CIP or reduce retail rate revenue requirements. In this rate study, SPU is proposing to do both. Withdrawals of \$3 million and \$14.8 million for one time use on capital projects are proposed in 2018 and 2019, respectively. In 2020, a withdrawal of \$1.2 million is proposed to reduce retail rate revenue requirements. Using the RSF to fund the capital program substitutes for using bond funds, reduces future debt service and keeps long-term rates lower.

### **Use of Cash Balances**

In 2015, rating agencies released new methodologies for grading the financial stability of water utilities. A major area of concern for utilities such as SPU is low levels of unrestricted cash balances. As a result, SPU is proposing to keep cash balances higher than the formal policy target. Rates assume a \$7 million draw on cash in 2018 to fund capital. Cash balances then increase \$1 million dollars per year in 2019 and 2020.

### **Wholesale & Non-Rate Revenues**

There is a significant, one-time increase in wholesale revenues in 2018 compared to the 2017 amount assumed in the 2016-2017 rate study. In 2013, Cascade Water Alliance agreed to pay a \$12 million lump sum in 2018 as part of a contract renegotiation. This rate study proposes to use the lump sum payment to fund the capital program. In addition, ongoing wholesale revenues experience a sustained step up in 2018 due to increased spending on regional activities and assets.

**Effects of Changes in Demand and Utility Discount Program (UDP)**

While generally not a *revenue requirement driver*, changing demand for water is a significant *rate driver*. **Table 1-2** shows the impact of demand and UDP changes on the overall average rate increase. Projected demand in 2018 is 3.8 percent higher than assumed for 2017, decreasing rates as the revenue requirement is spread over more consumption units. Small consumption decreases in demand forecasts for 2019 and 2020 are partially offset by increases in system connections. The Mayor’s initiative to double UDP participation by 2018 increases overall rates.

**Table 1-2**  
**Impacts of Demand and UDP on Rate Increase**

	2018	2019	2020
Revenue Requirement Increase	5.4%	3.0%	3.7%
Demand/Connections Impact	-3.1%	0.4%	0.0%
Utility Discount Program Impact	0.7%	0.2%	0.3%
Average Rate Increase*	3.0%	3.5%	4.0%

\*Rates may not total due to rounding.

**Financial Performance**

The 2018-2020 rate study meets or exceeds all water system financial policy targets during the rate period as shown in **Table 1-3**. See Chapter 2 for further discussion of financial policy targets and their impact on rate setting.

**Table 1-3**  
**Water Fund Projected Financial Performance**

(\$ in 1,000's)	Target	Projected	Projected	Projected	Projected	Projected	Projected
		2018	2019	2020	2021	2022	2023
Net Income	positive	\$50,249	\$47,838	\$33,354	\$36,143	\$37,918	\$40,797
Debt Service Coverage	1.7x	1.99	1.93	1.70	1.70	1.70	1.70
Cash Financing of the Capital Program	20%*	46.7%	33.3%	25.8%	36.5%	36.5%	33.8%
from Contributions in Aid of Construction		4.2%	4.1%	5.4%	6.8%	6.8%	6.4%
from Rate Revenues		42.5%	29.3%	20.4%	29.7%	29.7%	27.4%
Year-End Operating Cash	varies**	\$31,000	\$32,000	\$33,000	\$34,000	\$35,000	\$36,000

\* Current revenues should be used to finance no less than 15% of the CIP in any one year, and average not less than 20% over each rate proposal period.

\*\* Year-End Operating Cash Target is 1/12th of the current year's operating expenses, or \$10.2 million in 2018.



## 2. FINANCIAL POLICY OVERVIEW

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Financial policies provide a guiding framework for the finances of the water utility. They represent a balance between the competing goals of fiscal conservatism through higher rates today and minimizing these same rates by spreading costs over time to future ratepayers. The direct effect of the policies is to determine the level at which water rates shall be set, given estimated costs and demand, and to define how the capital improvement program is to be financed.

The indirect effects of the policies are to:

- Shape the financial profile the utility presents to the financial community;
- Establish the utility's exposure to financial risk; and
- Allocate the utility's costs between current and future ratepayers.

In 2005, City Council passed Resolution 30742, which adopted new water system financial policies that reflect changes and additions to the financial policies initially adopted in 1992. This rate proposal is based on the 2005 policies which are as follows:

1. **Maintenance of Capital Assets.** For the benefit of both current and future ratepayers, the municipal water system will seek to maintain its assets in sound working condition. Future revenue requirement analyses will include provision for maintenance and rehabilitation of facilities at a level intended to minimize total cost while continuing to provide reliable, high quality service.
2. **Debt Service Coverage.** Debt service coverage on first-lien debt should be at least 1.7 times debt service cost in each year on a planning basis.
3. **Net Income.** Net income should generally be positive.
4. **Cash Funding of the Capital Improvement Program.** Current revenues should be used to finance no less than 15 percent of the municipal water system's adopted CIP in any year, and not less than 20 percent of the CIP over the period of each rate proposal. Cash in excess of working capital requirements may be used to help fund the CIP.
5. **Eligibility for Debt Financing.** Unless otherwise authorized by Council, the following criteria must be met before project expenditures are eligible for debt financing:
  - i) Project is included in the CIP.
  - ii) Total project cost exceeds \$50,000.
  - iii) Project has expected useful life of more than two years (more than five years for information technology projects).
  - iv) Resulting asset will be owned or controlled by Seattle Public Utilities (SPU), is part of the regional utility infrastructure, or represents a long-term investment for water conservation.
  - v) Consistent with generally accepted accounting practices, project costs include those indirect costs, such as administrative overhead and program management, that can be reasonably attributed to the individual CIP project.
6. **Revenue Stabilization Fund (RSF).** Ordinance 121761 requires that a target balance of \$9 million be maintained in the RSF, except when withdrawals below this level are needed to offset shortfalls in metered water sales revenues, or to meet financial policy requirements. Withdrawals of funds in excess of the minimum balance will be used to meet operating expenses, to pay CIP expenditures, or

to meet financial policy requirements. Withdrawals from the RSF must be authorized by ordinance, except that Bonneville Power Administration (BPA) Account funds may be withdrawn based on BPA spending.

The Water Fund must deposit revenues in excess of planned metered water sales to the RSF in years where all financial policy targets are exceeded.

SPU may also make discretionary deposits to the RSF, provided that these discretionary deposits are in excess of the amounts required to meet the financial policy requirements. Should the RSF balance fall below the target balance, SPU will submit a water rate proposal that rebuilds the balance in the RSF within one year.

7. **Cash Target.** The target for the year-end operating fund cash balance is one-twelfth of the current year's operating expenditures. For this rate study SPU has modeled year-end cash of \$31 million in 2018, increasing by \$1 million per year after that. While exceeding the cash minimum target, this has little impact on rates because cash is not the binding constraint. This strategy is in response to previous concerns by rating agencies about the Water Fund's liquidity.
8. **Variable Rate Debt.** Variable rate debt should not exceed 15 percent of total outstanding debt. Annual principal payments shall be made on variable rate debt in a manner consistent with fixed rate debt.

In any future year, the minimum revenue requirement is the lowest amount of money necessary to simultaneously satisfy all financial policies in that year. At this level of revenues, some financial policies may be exceeded, but none will be missed – the financial target that is exactly met is known as the binding constraint. For this rate study, however, rates in 2018 and 2019 were not set based on financial targets. Based on the recommendation of the Customer Review Panel, as part of the Strategic Business Plan Update, rates in 2018 and 2019 were set to meet *rate* increase targets (a process commonly called rate “smoothing”). Proposed rates in both years will meet or exceed all financial policy targets. In 2020, debt service coverage is the binding constraint. Thus, proposed rates will generate enough revenue to meet the debt service coverage target, and more than enough revenue to meet or exceed the net income, cash funding of the capital improvement program, and cash targets.

### 3. RETAIL WATER REVENUE REQUIREMENT

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The **water system revenue requirement** is the minimum amount of operating revenue required to fund the water system operating budget and meet financial policy targets for net income, cash balances, cash financing of the CIP, Revenue Stabilization Fund balances, and debt service coverage. The component requiring the greatest amount of revenue generation (budgetary expenses or one of the financial policy requirements) is termed the “binding constraint.” The **retail water revenue requirement** is equal to the water system revenue requirement, less funding from sources other than retail rates including wholesale revenues, drawdowns of cash balances, withdrawals from the Revenue Stabilization Fund, and other operating/non-operating revenues.

Rate increases are required to fund increases in the revenue requirement from one rate setting period to the next. Where demand is constant, the average rate increase will equal the increase in the revenue requirement. Increasing demand (i.e., customers buying more units of water) will reduce the required rate increase and declining demand will increase the rate increase relative to the change in the revenue requirement. In addition, changes in participation in the utility discount program affect the rate changes. Increased participation in the program reduces revenues as more households are paying a discounted rate. The reduction in revenue must be made up through an increase in standard rates.

**Table 3-1** summarizes the components of the change in the retail water revenue requirement during the proposed rate period. Current (2017) rates were set in 2015 based on planned expenditures, demand, and other funding sources for the prior rate setting period (2016-2017). The change in the 2018 revenue requirement in Table 3-1, and throughout this section, is relative to the 2017 plan assumed in the 2016-2017 rate study. Likewise, the 2019 and 2020 changes are relative to planned spending/income in the prior year.

**Table 3-1**  
**Components of the Change in the Retail Water Revenue Requirement**

(\$1,000's)	2017 Rate Study	2018	\$ Change in Rev Req	% Change in Total Rev Req	2019	\$ Change in Rev Req	% Change in Total Rev Req	2020	\$ Change in Rev Req	% Change in Total Rev Req
<b>Expenditure</b>										
<b>Operations and Maintenance Expense (O&amp;M)</b>										
Branch O&M	117,563	122,564	5,002	2.6%	127,682	5,118	2.5%	134,125	6,442	3.0%
Taxes	41,676	43,960	2,283	1.2%	45,221	1,261	0.6%	46,860	1,639	0.8%
<b>Total</b>	<b>159,239</b>	<b>166,524</b>	<b>7,285</b>	<b>3.7%</b>	<b>172,903</b>	<b>6,379</b>	<b>3.10%</b>	<b>180,984</b>	<b>8,082</b>	<b>3.8%</b>
<b>Capital Financing</b>										
Cash financing (target)	16,373	23,215	6,843	3.5%	25,002	1,786	0.9%	18,709	(6,293)	-3.0%
Debt Service	83,988	83,591	(397)	-0.2%	87,323	3,732	1.8%	92,188	4,865	2.3%
<b>Total</b>	<b>100,361</b>	<b>106,806</b>	<b>6,446</b>	<b>3.3%</b>	<b>112,325</b>	<b>5,518</b>	<b>2.7%</b>	<b>110,897</b>	<b>(1,427)</b>	<b>-0.7%</b>
<b>Other Financial Policy Requirements</b>										
Increase Cash Balance	-	-	-	0.0%	1,000	1,000	0.5%	1,000	-	0.0%
Additional Capital Program Funding	13,020	31,040	18,021	9.2%	16,665	(14,375)	-7.4%	5,464	(11,201)	-5.7%
<b>Total</b>	<b>13,020</b>	<b>31,040</b>	<b>18,021</b>	<b>9.1%</b>	<b>17,665</b>	<b>(13,375)</b>	<b>-6.5%</b>	<b>6,464</b>	<b>(11,201)</b>	<b>-5.3%</b>
<b>Total Expenditure</b>	<b>272,619</b>	<b>304,371</b>	<b>31,751</b>	<b>16.2%</b>	<b>302,892</b>	<b>(1,478)</b>	<b>-0.7%</b>	<b>298,345</b>	<b>(4,547)</b>	<b>-2.1%</b>
<b>Other Funding Sources</b>										
Wholesale Revenues	(49,340)	(67,353)	(18,014)	-9.2%	(57,287)	10,067	4.9%	(58,815)	(1,528)	-0.7%
Non-rate revenues	(19,315)	(20,986)	(1,670)	-0.9%	(18,642)	2,344	1.1%	(18,290)	352	0.2%
RSF withdrawal	(8,300)	(3,000)	5,300	2.7%	(14,800)	(11,800)	-5.7%	(1,200)	13,600	6.4%
Decrease Cash Balance	(305)	(7,000)	(6,695)	-3.4%	-	7,000	3.4%	-	-	0.0%
<b>Total Other Funding Sources</b>	<b>(77,260)</b>	<b>(98,339)</b>	<b>(21,079)</b>	<b>-10.8%</b>	<b>(90,729)</b>	<b>7,611</b>	<b>3.7%</b>	<b>(78,305)</b>	<b>12,424</b>	<b>5.9%</b>
<b>Net Retail Rates Revenue Requirement</b>	<b>195,359</b>	<b>206,031</b>	<b>10,672</b>	<b>5.4%</b>	<b>212,164</b>	<b>6,132</b>	<b>3.0%</b>	<b>220,040</b>	<b>7,877</b>	<b>3.7%</b>
<b>Impact of Demand/Connections</b>										
Change in Utility Discount Program	3,644	5,106	1,461	0.7%	5,415	310	0.2%	5,954	538	0.3%
<b>Effective Increase in Retail Rates</b>				<b>3.0%</b>			<b>3.5%</b>			<b>4.0%</b>

The **Expenditure** section of Table 3-1 presents the operating fund cash spending components that make up the water system revenue requirement. The **Other Funding Sources** section presents other sources of funding which reduce the amount of expenditure that must be recovered through retail rates. The final section of the table presents two items, "**Demand**" and "**Utility Discount Program,**" that do not affect the revenue requirement but do affect rates. For example, total expenditure increases the total revenue requirement by 16.2 percent from 2017 to 2018. However, increases in other funding sources (wholesale revenues, non-rate revenues, and RSF withdrawals) decrease the retail revenue requirement by 10.8 percent, resulting in a net increase of 5.4 percent in the 2018 retail rates revenue requirement. The actual average rate increase of 3.0 percent is lower than the revenue requirement increase due to a projected increase in demand, which is partially offset by an increase in utilization of the utility discount program.

The following sections include more detailed descriptions of the components of change in the revenue requirement.

### 3.1. Operations and Maintenance Expense (O&M)

The water system O&M expenditure requirement includes costs attributable to water operations, as well as a portion of administrative expenses that water shares with other SPU funds (e.g., finance, customer service, etc.). For rate study purposes, O&M includes taxes but does not include debt service, which is discussed under capital financing. O&M is broken into two categories: branch O&M and taxes.

Branch O&M equals the spending required to support operations and maintenance functions of the water utility. Under this proposal, 2018 branch O&M increases \$5.0 million from the 2017 amount as projected in the 2016-2017 rate study.

The 2018 branch O&M increase from the 2017 rate study is due to the following:

- \$3 million is associated with updated growth assumptions between the 2017 Rate Study and the 2018 Rate Study in city central costs, pensions, and other labor costs.
- \$2 million is related to investments identified in the SBP, such as preparing for expanded apprenticeship program, water system maintenance, increase in security monitoring and information technology portfolio and strategy management.

The proposal assumes branch O&M increases of \$5.1 million in 2019 and \$6.4 million in 2020.

SPU pays three primary taxes, the City of Seattle Water Utility Tax, Washington State Utility Tax and the Washington State B&O Tax. While all three taxes are not applicable to all revenue sources, they all are revenue based taxes. As such, as revenue increases, tax expense increases. Taxes increase \$2.3 million in 2018, \$1.3 million in 2019, and \$1.6 million in 2020 due to a higher projected tax revenue base.

### 3.2. Capital Financing Expense

Financing of the capital program will increase the expenditure requirement by 3.3 percent in 2018, 2.7 percent in 2019, and decrease it by 0.7 percent in 2020, as presented in Table 3-1.

Major water capital programs to be funded during this period include:

- Distribution System Improvements
- 'Move Seattle' Utility Relocation Projects
- Tolt Pipeline Stabilization (Tolt Slide)
- Service Renewals and Retirements
- Regional Conservation Programs

SPU funds water system capital projects through a combination of cash (from direct service and non-rates revenue) and debt financing (revenue bonds and low-interest loans serviced by rates revenue). As discussed in Section 3.2.2, SPU will be issuing bonds in each of the last two years of the rate study. This rate study forecasts CIP cash financing that will exceed the financial target of 20 percent of CIP over the three-year rate period. The remaining CIP will be funded with revenue bond proceeds. **Table 3-2** presents CIP spending and financing assumptions during the rate period.

**Table 3-2  
 Capital Spending and Financing Assumptions**

(\$1,000's)	2018	2019	2020	Rate Study Average
<b>CIP Spending Assumption</b>	116,077	125,009	93,546	
<b>CIP Financing Breakdown</b>				
Cash Financed	54,256	42,667	25,173	
Debt Financing				
Low Interest Loan	0	0	0	
Bond Financing	61,822	82,343	68,374	
Cash Financed Percentage	46.7%	34.1%	26.9%	36.5%
Debt Financed Percentage	53.3%	65.9%	73.1%	63.5%

**3.2.1. Cash Financing (Target Only)**

Water system financial policies require that a minimum of 20 percent of the CIP be financed with current cash revenues (as opposed to debt proceeds) over the rate period. The sources of cash that assist in meeting this 20 percent target are operating revenues, cash on hand, and contributions in aid of construction<sup>1</sup>.

Although CIP cash financing is projected to exceed the financial policy target, this section discusses only the cash necessary to just meet the 20 percent cash financing target. The additional capital funding, over and above the cash financing target, is discussed in Section 3.3 and Section 3.4.

As presented in **Table 3-3**, targeted cash financing of the CIP increases \$6.8 million in 2018, \$1.8 million in 2019, and decreases \$6.3 million in 2020.

**Table 3-3  
 Change in Target Cash Financing**

(\$1,000's)	2017*	2018	\$ Change	2019	\$ Change	2020	\$ Change
Cash Financed (Target)	16,373	23,215	6,843	25,002	1,786	18,709	(6,293)

\* 2017 assumptions used in 2016-2017 Rate Study

**3.2.2. Debt Service**

**Table 3-4** presents projected Water Fund debt service, by source, during the rate period.

<sup>1</sup> Customers often pay for water facilities when they connect to the water system or cause the relocation of water facilities. For example, a developer pays for installation of a water meter and service line when building a new house.

**Table 3-4**  
**Change in Water Fund Debt Service**

(\$1,000's)	2017*	2018	\$ Change	2019	\$ Change	2020	\$ Change
Debt Service Details							
Debt service for existing bond issues	82,011	81,293	(718)	81,340	48	81,725	385
2019 bond debt service**				3,710	3,710	6,181	2,470
2020 bond debt service**						2,036	2,036
Low interest loan debt service	1,977	2,298	321	2,272	(26)	2,246	(26)
<b>Total Debt Service</b>	<b>83,988</b>	<b>83,591</b>	<b>(397)</b>	<b>87,323</b>	<b>3,732</b>	<b>92,188</b>	<b>4,865</b>

\* 2017 assumptions used in 2016-2017 Rate Study

\*\* Bond principal is assumed to begin in the year following issue. Interest Payments are assumed to begin in the year of issue.

In the second quarter of 2019, SPU expects to issue approximately \$89.8 million in new revenue bonds. An additional \$74.0 million of new money bonds are expected to be issued in the second quarter of 2020. SPU is proposing to issue bonds that are expected to fund roughly one year of CIP needs.

### 3.3. Other Financial Policy Requirements

As discussed in Chapter 2, proposed rates for 2018 and 2019 are not based on financial policy targets, but rather rate path targets designed to smooth the three-year rate path. Because revenues in these years are not set to just meet a binding financial target, all policy targets are exceeded.

In 2020, debt service coverage is the binding financial policy constraint. Debt service coverage became the binding constraint in 2008 after SPU refinanced \$93 million of variable rate debt into fixed rate debt amidst the financial crisis, raising the debt from second lien to first lien. Second lien debt is not considered for debt service coverage calculations.

By generating enough revenues to meet the debt service coverage target, all other financial policy targets will be exceeded in 2020. Meeting the debt service coverage target is important and benefits rate payers. Financial targets are used by bond holders to assess SPU's creditworthiness, and favorable ratings help SPU sell revenue bonds to fund infrastructure investments at the lowest costs possible. This benefits both the utility and its rate payers.

**Table 3-5** presents how SPU proposes to spend revenues generated from financial policies over the three-year rate period.

**Table 3-5**  
**Impacts of Changes to Financial Policy**

(\$1,000's)	2017*	2018	\$ Change	2019	\$ Change	2020	\$ Change
Increase Cash Balance	-	-	-	1,000	1,000	1,000	(0)
Additional Capital Program Funding	13,020	31,040	18,021	16,665	(14,375)	5,464	(11,201)
<b>Financial Polices</b>	<b>13,020</b>	<b>31,040</b>	<b>18,021</b>	<b>17,665</b>	<b>(13,375)</b>	<b>6,464</b>	<b>(11,201)</b>

\* 2017 assumptions used in 2016-2017 Rate Study

It is important to note that not all of the source funding of these expenditures and increased cash come directly from retail rate revenues. In 2018, Cascade Water Alliance will pay SPU \$12 million as part of a contract renegotiation in 2013. Additionally, SPU proposes withdrawals totaling \$17.8 million from the

RSF in 2018 and 2019 to fund the capital program. These one-time revenues, plus a \$7.0 million draw down of operating cash in 2018, comprise a majority of the financial policy related spending during the first two years of the study. See Section 3.4 for more detail.

In 2019 and 2020, cash balances are proposed to increase \$1 million per year. From a rate setting perspective, increasing cash balances act as a rate driver. Cash balance increases represent revenue that must be raised above what is spent, increasing the Fund’s revenue requirement.

The high level of CIP cash financing minimizes the size of debt issues each year and future rate increases driven by debt service coverage.

### 3.4. Other Funding Sources

A significant portion of the total water system expenditure requirement is funded through wholesale revenues, capital contributions, asset sales, and other operating and non-operating revenues. These other funding sources reduce the amount to be recovered through retail rates and therefore are reflected as reductions to the retail revenue requirement in each year. Other funding sources, primarily use of cash balances and non-rate revenues, are projected to increase from 2017 projections by \$21.1 million in 2018, offsetting most of the increased expenditure.

#### 3.4.1. Wholesale Revenues

Revenues from wholesale customers, as presented in **Table 3-6**, are expected to be increase \$18.0 million in 2018 from the assumed amount in the 2017 rate study. Most of this increase is a \$12 million one-time payment from Cascade Water Alliance related to a contract renegotiation in 2013. Wholesale revenues in 2019 and 2020 are expected to return to levels more in line with historical growth patterns.

**Table 3-6**  
**Change in Wholesale Revenues**

(\$1,000's)	2017*	2018	\$ Change	2019	\$ Change	2020	\$ Change
Full & Partial Revenue**	22,372	25,497	3,125	26,876	1,380	28,604	1,728
Cascade Block Revenue	21,428	35,752	14,324	24,220	(11,532)	24,081	(138)
Northshore Block Revenue	5,540	6,104	565	6,190	86	6,129	(61)
<b>Total</b>	<b>49,340</b>	<b>67,353</b>	<b>18,014</b>	<b>57,287</b>	<b>(10,067)</b>	<b>58,815</b>	<b>1,528</b>

\* 2017 assumptions used in 2016-2017 Rate Study

\*\* Includes facilities charge revenues and Renton conservation payment.

Rates for wholesale customers have not yet been approved for 2018-2020, but will be proposed in accordance with wholesale contracts. These contracts define cost of service methodologies that determine how much the water system charges for wholesale service. Wholesale rate studies apply these methodologies based on expenditure projections (budget). Wholesale rates may be affected by actions that raise or lower the water system O&M or CIP budget. Outside of budget changes, there is very little flexibility to alter wholesale rates and revenues.



### 3.4.2. Non-rate Revenues

As presented in **Table 3-7**, other non-rate revenue (unmetered revenue) is projected to increase from \$19.3 million assumed for 2017 to \$21.0 million in 2018. Total non-rate revenue is projected to decrease to \$18.6 million in 2019 and \$18.3 million in 2020.

**Table 3-7**  
**Change in Non-Rate Revenues**

(\$1,000's)	2017*	2018	\$ Change	2019	\$ Change	2020	\$ Change
Unmetered Revenues							
Capital Contributions & Tap Fees	11,129	11,648	519	11,901	253	12,013	112
Operating Fund Interest Income	187	98	(89)	62	(35)	92	29
Charges for Miscellaneous Services	2,540	2,445	(94)	2,506	61	2,569	63
Rentals & Others	3,811	3,176	(636)	3,250	74	3,325	76
Build America Bonds Reimbursement	2,135	1,984	(151)	1,984	-	2,080	97
Billing leads & lags	(487)	1,635	2,122	(1,061)	(2,696)	(1,789)	(728)
<b>Total Unmetered Revenues</b>	<b>19,315</b>	<b>20,986</b>	<b>1,670</b>	<b>18,642</b>	<b>(2,344)</b>	<b>18,290</b>	<b>(352)</b>

\* 2017 assumptions used in 2016-2017 Rate Study

The largest category of other non-rate revenues is capital contributions and tap fees, which is projected to increase modestly over the rate period. The rise is generally the result of projected increased charges related to development, not increased activity.

Billing leads and lags are year-end cash effects that adjust for differences in when an expense (or revenue) is recorded in SPU financial systems<sup>2</sup> versus when the associated cash is paid (or received). These lags/leads result in an impact on rates when their sum dollar amount changes from year to year. The leads/lags presented in Table 3-8 are primarily associated with changes in the timing of CIP billed to SPU from year to year.

### 3.4.3. Revenue Stabilization Fund Withdrawals

As discussed in Chapter 2, the minimum balance in the RSF is \$9 million. From a rates perspective, withdrawals from the RSF are part of the other funding sources pool. Increases in withdrawal size add to this pool and therefore reduce the retail rate revenue requirement. Decreases in withdrawal size reduce the size of this alternative funding pool and increase the direct service funding requirement.

At the end of 2016 the actual balance in the RSF was \$40.9 million. An \$8.3 million withdrawal is planned for 2017. In this rate proposal, SPU recommends withdrawing \$3 million in 2018 and \$14.8 million in 2019 to fund the capital program. In addition, SPU also recommends a withdrawal of \$1.2 million in 2020 to offset the retail revenue requirement. As discussed in the other financial policies section above, the increase in cash financing of CIP offsets the need for future borrowing, lowering debt service and lowering rates in the long term.

**Table 3-8** presents projected RSF balances.

**Table 3-8**

<sup>2</sup> In general, revenues are recorded when billed and expenses when invoiced.

### Projected Water Revenue Stabilization Fund Balances

With Interest Rate Adjustment to Table 3-9

(\$1,000's)	2017*	2018	\$ Change	2019	\$ Change	2020	\$ Change
Beginning RSF Cash Balance	28,419	33,059		30,389		15,893	
Interest	284	331		304		159	
Deposit (Withdrawal)	(8,300)	(3,000)		(14,800)		(1,200)	
<b>Ending RSF Cash Balance</b>	<b>20,403</b>	<b>30,389</b>		<b>15,893</b>		<b>14,852</b>	
Cash used to support revenue requirement	1,800	0	(1,800)		0	1,200	1,200
Cash used to support capital financing	6,500	3,000	(3,500)	14,800	11,800	0	(14,800)

\* 2017 assumptions used in 2016-2017 Rate Study

#### 3.4.4. Use of Cash Balances (Other Funding Sources)

Revenue generated by rates is used to fund current operating expenses, maintain a cash balance as a safeguard against unexpected expense, and fund a portion of the current capital program. A rate may be set to increase, hold constant, or decrease the Water Fund's Operating Fund cash balances. Decreasing, or drawing down, a cash balance in a given year may lower rates in that year as that cash does not need to be received through rate revenues. However, just like other funding sources, what affects rates is not the level of funding in any one year, but the year-to-year change in funding from that source. See Section 3.3 for more detail on cash balances.

Table 3-9 below illustrates the use of cash balances each year of the rate study in support of the spending requirement.

**Table 3-9**  
**Operating Cash Used to Fund Expenditures**

(\$1,000's)	2017*	2018	\$ Change	2019	\$ Change	2020	\$ Change
Operating Cash Draw Down	305	7,000	6,695	0	(7,000)	0	0

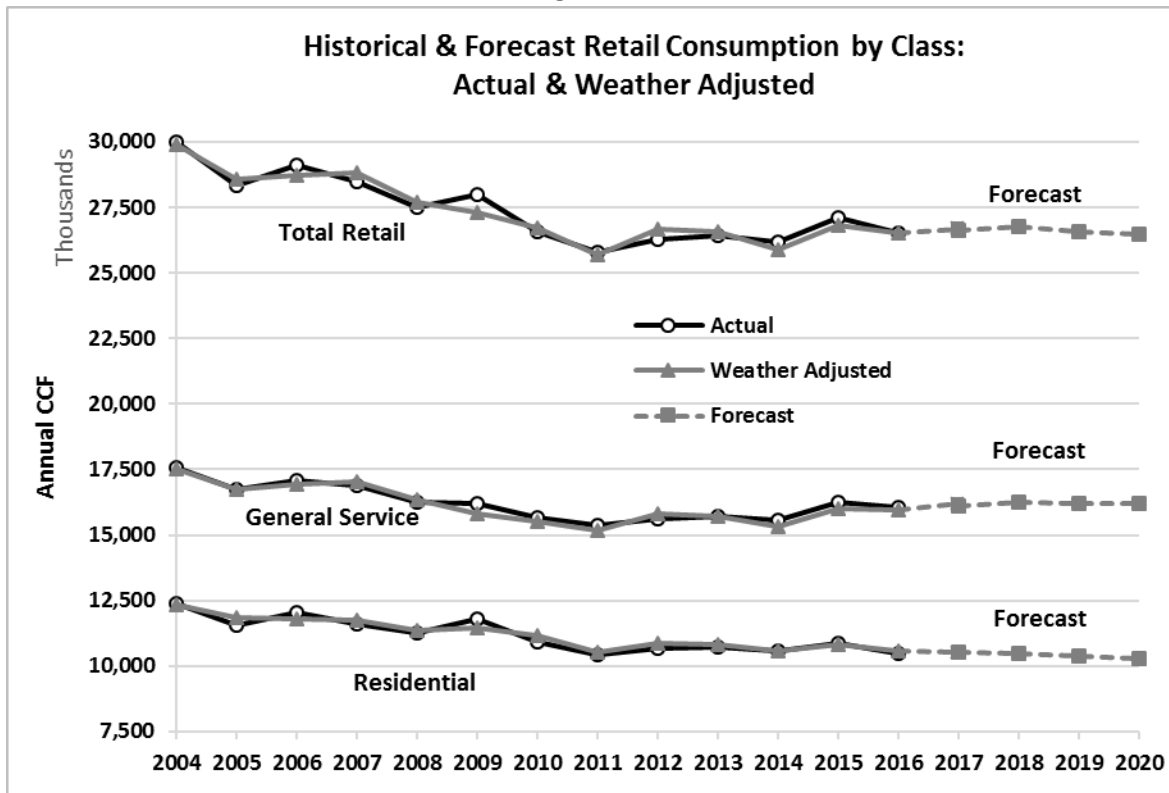
\* 2017 assumptions used in 2016-2017 Rate Study

### 3.5. Effect of Demand (Rate Adjustment)

The volume of water sold to retail customers is projected to remain essentially flat over the forecast period. For the rate study period, total retail consumption is expected to be around 26.5 million CCF. Consumption is expected to fall slightly in both residential and general service customer classes.

Despite generally growing population and employment, water consumption through the 1990s and 2000s trended downwards due to various forms of conservation (programs, efficiency codes and standards, rising water and sewer rates, etc.). With the end of the 1% Conservation program in 2011 and a rebound in employment after the Great Recession, water consumption appears to have leveled off as shown in **Figure 3-1**. The effects of growth and conservation are forecasted to largely offset each other so that consumption remains close to current levels through the rest of the decade.

Figure 3-1



"Weather adjusted" consumption normalizes consumption to average historical summer weather.

SPU's forecast model was used to produce a short-term forecast for 2017 through 2020. The model is based on the following variables<sup>3</sup>:

- Households: Multifamily households are assumed to represent 79% of the total growth in the number of households from 2016 through 2020.
- Employment: Employment is projected to grow 2.0% in 2017, 1.3% in 2018, 1.1% in 2019, and 1.0% percent in 2020.
- Growth in household income: Median household income is assumed to increase 0.9% in real dollars through the forecast period.
- Growth in water and sewer rates: SPU projected rate increases through 2020 (annual rate increases that average 4.1% for water and 8.8% for sewer).
- Estimates of conservation savings: Conservation from all sources (price, code, standards and programs) is expected to reduce retail consumption by about 0.6 million gallons per day (mgd) or about 1% per year.

<sup>3</sup> Demographic variables from PSRC Land Use Baseline Forecast by Census Tract (May 2016).  
 Employment from Puget Sound Forecaster (Conway) 10-year economic forecast (March 2017).  
 Median Income based on historical trend as reported by Washington State Office of Financial Management (March 2017).

Based on the variables above, consumption levels are expected to hold at current levels despite the growth in households and employment. The results of the water demand model for residential and general service customers are shown in the Figure 3-1 and in **Table 3-10**.

**Table 3-10**  
**Short Term Water Consumption Forecasts (Annual ccf)**

	Residential		General Service		Total	
	Consumption (CCF)	Percent Change	Consumption (CCF)	Percent Change	Consumption (CCF)	Percent Change
<b>Actual*</b>						
2015	10,820,000		16,020,000		26,840,000	
2016	10,570,000		15,970,000		26,540,000	
<b>Projected</b>						
2017**	10,510,000	-0.6%	16,110,000	0.9%	26,620,000	0.3%
2018	10,500,000	-0.1%	16,250,000	0.9%	26,750,000	0.5%
2019	10,360,000	-1.3%	16,200,000	-0.3%	26,560,000	-0.7%
2020	10,270,000	-0.9%	16,210,000	0.1%	26,480,000	-0.3%

\* Weather Adjusted

\*\* Current Projection (not 2017 rate study)

For the above analysis, 2016 consumption was adjusted for weather and used as a base year. As a significant quantity of water is used for irrigation purposes during the summer, water sales depend on summer weather. The forecast model assumes the weather of a “normal” year in which summer weather is not particularly wet, dry, hot or cool. Actual demand will vary from forecast because summer weather varies.

In terms of the impact of demand on water rates, small decreases in consumption are partially offset by an increase in the number of water meters. Water rates are made up of a fixed base service charge as well as a consumption charge. Water consumption is the unit of demand for the consumption charge while number of customers (measured by the number of meters) is the unit of demand for the base meter charge. When the number of meters increases, the customer base broadens. Residential meters are projected to increase 0.5 percent annually, and commercial meters are projected to increase by a smaller amount during the 2018-2020 rate period.

As mentioned above, these combined changes in consumption and meters are a portion of the difference between the increase in revenue requirement and the increase in the rate. The impact of these rate drivers is shown in **Table 3-11**. Increased consumption in 2018 compared to 2017 slows rate growth, while reduced projected consumption in 2019 and 2020 supports higher rate growth (which is then mitigated by increasing retail meters.)

**Table 3-11**  
**Effect of Demand on Rate Increase**

	2017*	2018	\$ Change	2019	\$ Change	2020	\$ Change
Total Consumption	25,878	26,750	872	26,560	(190)	26,480	(80)
Total Retail Meters	193,635	195,477	1,842	196,488	1,011	197,498	1,010
Effect on Rate Increase			-3.1%		0.4%		0.0%

\* 2017 assumptions used in 2016-2017 Rate Study

### 3.6. Effect of Changes in the Utility Discount Program (Rate Adjustment)

Similar to demand, changes in customer participation in the UDP do not affect the Water Fund revenue requirement but do affect the rate increase. Increased participation in the program reduces revenues as more households are paying a discounted rate. The reduction in revenue must be made up through an increase in standard rates. In 2015 the Mayor announced an initiative to double UDP enrollment by 2018. As of early 2017 the goal has nearly been met. Enrollment is forecasted to continue to rise, though at a slower rate than in previous years, through the 2019-2020 rate period. The effect on rates is shown in **Table 3-12**.

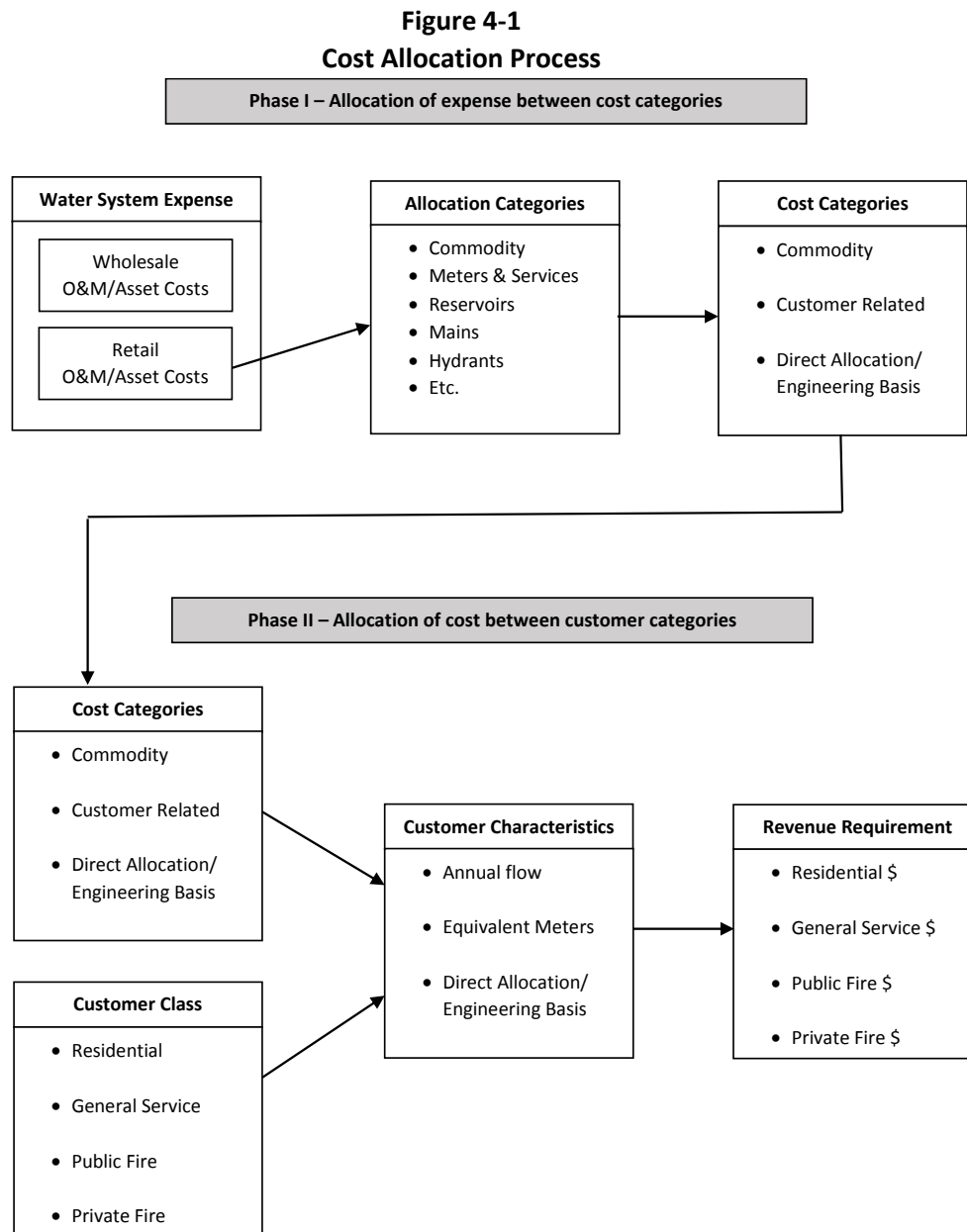
**Table 3-12**  
**Effect of Changes to Utility Discount Program on Rate Increase**

(\$1,000's)	2017*	2018	\$ Change	2019	\$ Change	2020	\$ Change
Total Discount	3,624	5,106	1,482	5,415	310	5,954	538
Effect on Rate Increase			0.7%		0.2%		0.3%

\* 2017 assumptions used in 2016-2017 Rate Study

## 4. COST ALLOCATION

Once the **retail revenue requirement** is set, it must be assigned to different customer classes. A customer class is a group of customers that places a unique cost on the utility or is administratively easier to serve as a group. **Figure 4-1** presents the multiple steps (divided into two phases) required to allocate water expense to individual customer classes. In the first phase, the retail component of water system expense is allocated between cost categories, or groupings of cost items, that are driven by similar factors. In the second phase, the cost assigned to each cost category is allocated between customer classes based on defined customer characteristics.



The cost allocation process presented above recognizes differences in the costs of providing service to different types of customers. For example, a customer class with higher consumption requires increased

use of the water treatment plants, whereas a customer class with more accounts requires increased use of the customer billing system.

This chapter provides a general framework for **Phase I** of the cost allocation process, with complete details provided in Appendix A. This chapter then focuses on **Phase II** of the cost allocation process, organized as follows:

- Overview - cost categories
- Framework for allocation of retail water expense between cost categories (Phase I)
- Identification of customer classes and quantification of cost allocation characteristics (Phase II)
- Calculation of total cost of service, or revenue requirement, for each customer class (Phase II)

The current rate study does not propose any fundamental changes to the cost allocation methodology used in prior rate studies. While the cost category of capacity was eliminated from the 2016-2017 rate study, the effect on final allocations is negligible. The change was made for two reasons:

- 1) Due to falling demand, the current system is oversized from a cost allocation standpoint so very few assets were allocated using the capacity allocator, and
- 2) The difference in peaking characteristics of residential and general service has diminished as demand has fallen, so the allocator does not provide much distinction between customer classes.

#### 4.1 Overview – Cost Categories

Retail water system costs are grouped into three main cost categories which can be allocated among customer classes based on customer characteristics: commodity, customer-related, and directly assigned. The costs assigned to the first two categories are shared among different customer classes based on characteristics such as total annual water volume and number of accounts. Costs included in the directly assigned category are assigned in their entirety to the applicable customer classes.

**Commodity Costs.** Commodity costs vary proportionately with the amount of water provided under average consumption conditions. These costs include items such as the Cedar and Tolt treatment plants, and chlorination at in-town reservoirs. They also include the cost of activities and assets that are shared with wholesale customers since the allocation between wholesale and retail is based on annual flow.

**Customer-Related Costs.** Customer-related costs encompass an umbrella of expenses associated with serving customers independent of the amount of water they use. These include the cost of meter maintenance and repair, meter reading, billing, customer accounting, and the call center.

**Directly Assigned Costs.** These are costs that are directly allocable to a single customer class. For this rate study, directly assigned costs are primarily fire hydrant asset and repair costs.

**4.2 Framework for Allocation of Retail Expense to Cost Categories (Phase I)**

The cost allocation framework for retail water rates uses the distribution of embedded or average costs from a prior period (“test year”) to allocate future revenue requirements between different cost categories. Therefore, the 2018-2020 retail water system revenue requirements are assigned to customer classes based on the actual distribution of expense between those categories in 2015 (the test year). The test year expense is defined according to a “utility basis” which is the sum of the following elements:

- Annual operations and maintenance (O&M) costs;
- Depreciation expenses on assets paid for by rates; and
- A return on assets calculated on infrastructure in service.

Phase I of the cost allocation involves the distribution of prior year expense between cost categories, as further described in Appendix A, Sections A1.2 and A1.3. Additional information on the “utility-basis” costing framework can be found in Appendix A, Section A1.1 to this study.

**Table 4-1** presents the breakdown of 2015 retail water system expense by cost component (see **Appendix A** for the detail behind this data). As noted below, nearly three-quarters of retail water system expense is driven by annual water flow (usage).

**Table 4-1**  
**Water Cost Category Summary**

Component Cost Category	2015 Revenue	% of Total
Commodity	104,854,967	72.6%
Customer Related	32,603,507	22.6%
Direct/Engineering Basis*	6,956,511	4.8%
<b>Total</b>	<b>144,414,985</b>	<b>100.0%</b>

\*Public Fire

**4.3 Retail Customer Classes and Characteristics**

Retail water customers are divided into four customer classes.

- **Residential.** Customers living in single family or duplex residences.
- **General Service.** Commercial, governmental, and industrial customers as well as multi-family residential structures.
- **Private Fire.** The separately metered connections for fire-protection sprinkler systems installed on the customer’s property. These customers pay a separate rate for these services in addition to their General Service or Residential rates for their domestic services.
- **Public Fire.** The governmental agencies responsible for providing public fire protection (hydrants).



Costs are assigned to these customer classes based on how the characteristics of each class drive water system costs. **Table 4-2** summarizes the allocator (customer characteristics) used to assign cost to each component cost category.

**Table 4-2**  
**Allocators by Cost Category**

<b>Allocation Category</b>	<b>Customer Characteristics</b>	<b>Comments</b>
Commodity Costs	Annual flow	Actual 2015 total water consumption in hundreds of cubic feet (ccf).
Customer-Related Costs	Equivalent Meters	Equivalent Meters is a weighted count of different sized meters by class (See Appendix A1.5 for calculation details).
Direct Assignment	Class specific expense assigned directly to applicable class	These are costs for activities or assets that are dedicated to one customer class only.

**Table 4-3** quantifies the key characteristics (by class) that are used to allocate commodity, capacity and customer-related costs in the current rate study.

**Table 4-3**  
**Key Customer Characteristics**

<b>Customer Class</b>	<b>Annual Flow</b>	<b>Equivalent Meters</b>
Residential	39.9%	70.7%
General Service	59.7%	20.1%
Private Fire	0.1%	9.3%
Public Fire	0.3%	0.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

As shown in the table, the residential class accounts for the majority of equivalent meters while the general service class accounts for the majority of annual water usage. Although public fire water use is not directly measured, the annual flow used is consistent with the estimate used for state non-revenue water reporting.

#### **4.4 Cost of Service and Revenue Requirement by Customer Class**

The customer characteristic percentages in Table 4-3 are applied to the appropriate 2015 allocation categories in Table 4-1 to determine each customer class' actual 2015 cost of service. **Table 4-4** summarizes the results of this allocation process.

**Table 4-4  
Retail Water Cost of Service Based on 2015 Actual Financial Data**

<b>Customer Class</b>	<b>Annual Flow</b>	<b>Equivalent Meters</b>	<b>Direct/ Engineering Basis</b>	<b>Total</b>	<b>% of Total</b>
Residential	41,877,553	23,040,003	-	64,917,556	45.0%
General Service	62,608,275	6,539,941	-	69,148,215	47.9%
Private Fire	83,383	3,023,563	-	3,106,946	2.2%
Public Fire	285,756	-	6,956,511	7,242,267	5.0%
<b>Total</b>	<b>104,854,967</b>	<b>32,603,507</b>	<b>6,956,511</b>	<b>144,414,985</b>	<b>100.0%</b>

Allocations to the general service and residential customer classes account for the bulk (92.9 percent) of the retail water cost of service. Public and private fire represents only about seven percent of the total. The general service class is allocated the largest single share (47.9 percent). This class accounts for 59.7 percent of annual flows, which is applied to the largest portion of the water system revenue requirement.

The rate revenue requirements for each rate class are calculated by applying each class' percent of total 2015 cost to the 2018-2020 retail rates revenue requirements, with results as presented in **Table 4-5**.

**Table 4-5  
2018-2020 Retail Revenue Requirement  
By Customer Class**

<b>Customer Class</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Cost of Service Percentage</b>
Residential	92,615,387	95,372,037	98,912,783	45.0%
General Service	98,651,106	101,587,406	105,358,902	47.9%
Private Fire	4,432,561	4,564,494	4,733,954	2.2%
Public Fire	10,332,265	10,639,800	11,034,809	5.0%
<b>Total</b>	<b>206,031,319</b>	<b>212,163,736</b>	<b>220,040,448</b>	<b>100.0%</b>

Using the same general allocation framework as the 2016-2017 rate proposal, there is very little movement in the cost shares by customer class. **Table 4-6** illustrates the small changes for the 2018-2020 rate study relative to the 2016-2017 rate study. See Appendix A for more information.

**Table 4-6  
Cost Shares by Customer Class**

<b>Customer Class</b>	<b>2016-2017 Rate Study</b>	<b>2018-2020 Rate Study</b>
Residential	44.8%	45.0%
General Service	48.5%	47.9%
Private Fire	2.0%	2.2%
Public Fire	4.7%	5.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

## 5. RATE DESIGN

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Rate design is the last element of the rate study. Chapter 3 presented the amount of retail water revenue required to fund proposed 2018-2020 O&M and capital programs while meeting financial targets. Chapter 4 discussed the allocation of the revenue requirement between customer classes. This chapter identifies the rate structure and the proposed 2018-2020 rates, which will satisfy the retail revenue requirement and meet established rate design policy objectives.

The current rate study continues some rate design practices implemented in previous rate studies and are as follows:

- Proposed rates maintain meter and commodity rate parity between residential and general service customers<sup>4</sup>.
- Proposed changes to meter charges utilize the meter cost analysis from the 2009-2011 rate study in determining the differential (or progression) between rates for different size meters.

Continuing the trend in the 2016-2017 rate study, meter charges are increasing at a higher percentage than consumption rates. This continues to match results of the cost of service study.

No changes are proposed to some rates (larger meter charges), which are higher than their cost of service at current levels. Holding these rates constant rather than decreasing them somewhat mitigates the impact of the revenue requirement increase on the residential and general service commodity rate and provides rate stability.

The proposed rates increase the typical monthly residential bill by **\$1.62** in 2018, **\$1.91** in 2019, and **\$2.13** in 2020. The total increase over the three-year period is **\$5.66**. Typical residential consumption has remained at 5.0 ccf per month in the 2018-2020 rate proposal. The exact increase in general service bills varies based on consumption and meter size. A typical convenience store would see increases of **\$2.85, \$3.25, and \$3.95** per month for 2018, 2019, and 2020, respectively. Likewise, a typical 90-unit apartment building would see increases of **\$30, \$33 and \$42** per month. Rates for public fire on larger mains **increase 12.8 percent, 3.0 percent, and 3.7 percent in 2018, 2019, and 2020, respectively**. Private fire meter rates **increase 0.0 percent in 2018, 6.1 percent in 2019, and 2.9 percent in 2020**. There is no increase to private fire consumption rates.

### 5.1 Rate Design Overview

A utility rate structure, or rate design, typically considers three elements: classification of customers served, billing frequency, and schedule of charges for each customer class. The schedule of charges, or “rates,” is designed to recover the utility’s costs, given projected customer demand<sup>5</sup>. In addition to cost recovery, a rate structure should support and optimize a blend of various utility objectives and should work as a public information tool in communicating these objectives to customers.

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<sup>4</sup> Both customer classes pay the same base charge for comparatively-sized meters and the same single commodity rate for off-peak water use. The general service peak commodity rate is set at the second tier peak rate for residential customers.

<sup>5</sup> Section 3.5 discusses projected customer demand and its influence on rates during the rate period.

### 5.1.1 Retail Water Rate Structure

Seattle’s retail water customers are grouped into four broad customer classifications: Residential, General Service, Private Fire (e.g. building sprinklers), and Public Fire (municipal hydrants). SPU has developed rate structures for each of these customer classes which reflect the classes’ cost of service structure, demand patterns, and policy objectives. A given rate class may be further divided into sub-classes. While the rate structure for each sub-class (under the same primary class) will be similar or identical, the actual rate assigned to each sub-class will vary based on actual differences in cost of service or historical contractual requirements. **Table 5-1** provides a summary of Seattle’s retail water rate classes, subclasses, and associated rate structures.

**Table 5-1  
 Retail Water Rate Structure Summary**

<b>Class</b>	<b>Sub-class</b>	<b>Rate Structure</b>
Residential	<ul style="list-style-type: none"> <li>• In-City</li> <li>• Out-of-City</li> <li>• Shoreline Franchise</li> <li>• Lake Forest Park Franchise</li> <li>• Master-Metered Developments*</li> </ul>	<ul style="list-style-type: none"> <li>• Base Service Charge (meter-size based)</li> <li>• Single Off-Peak Commodity Rate</li> <li>• Tiered Peak Commodity Rate</li> <li>• Low-Income Rates</li> </ul>
General Service	<ul style="list-style-type: none"> <li>• In-City</li> <li>• Out-of-City</li> <li>• Shoreline Franchise</li> <li>• Lake Forest Park Franchise</li> </ul>	<ul style="list-style-type: none"> <li>• Base Service Charge (meter-size based)</li> <li>• Single Off-Peak Commodity Rate</li> <li>• Single Peak Commodity Rate</li> </ul>
Private Fire	<ul style="list-style-type: none"> <li>• In-City</li> <li>• Out-of-City</li> <li>• Shoreline Franchise</li> <li>• Lake Forest Park Franchise</li> </ul>	<ul style="list-style-type: none"> <li>• Base Service Charge (meter-size based)</li> <li>• Commodity Penalty Rate</li> </ul>
Public Fire (hydrants)	N/A	<ul style="list-style-type: none"> <li>• Charge for 4-inch mains</li> <li>• Charge for larger mains</li> </ul>

\*For rate setting purposes, there are two kinds of Master Metered Residential Developments (MMRDs). MMRDs are eligible to be classified as water systems by the State of Washington. Customers that have achieved that designation, and pay State Public Utility Tax on their revenue, are eligible for a lower rate from SPU. SPU does not pay State Public Utility Tax on revenues from those customers. MMRDs that do not pay State Public Utility Tax are subject to regular rates.

Section 5.1.2 discusses the objectives that have been considered in the development of the rate structures outlined above. Sections 5.2 through 5.5 provide additional detail on the rate structures by customer class and subclass. **Appendix C** lists all 2018-2020 rate schedules by class and sub-class.

### 5.1.2. Rate Objectives

SPU staff, with input from past Rate Advisory Committees, have identified the following policy objectives for the retail water rate design:

- Provide financial soundness;
- Advance economic efficiency;
- Promote customer equity;
- Encourage customer conservation;
- Contribute to transparency and customer understanding; and
- Reduce impacts on low-income customers.

Some of these objectives imply different directions in rate design than others. An appropriate rate design must strike the best overall balance among conflicting objectives. The first objective of financial soundness is overriding and should be met by all rate designs considered. The final objective of reducing impacts on low-income customers is partly met by a citywide program, in which SPU participates, to provide discounts to low-income and disabled customers. The remaining objectives are met to varying degrees by the individual rate structures, as further discussed in Sections 5.2 through 5.5.

## 5.2 Residential Rate Design

Residential accounts represent about 87 percent of total SPU retail water accounts. Residential customers are further broken into four subclasses: in-city customers, City of Shoreline/City of Lake Forest Park customers, other out-of-city customers, and master-metered customers. Low-income customers in any of these residential subclasses may qualify for a discount off their water utility bill. This section provides additional detail on the components of the residential rate design, the residential rate changes, residential rate subclasses and the UDP.

Under the proposed rates, a typical (median) single family residential bill will increase by **\$1.62** per month in 2018, **\$1.91** per month in 2019, and **\$2.13** in 2020 (given constant consumption). The impact for different residential customers can vary based on the amount of water used, as presented in **Table 5-2**.

**Table 5-2**  
**Monthly Residential Bills at Proposed Rates**

Customer Type	Monthly Consumption		2017 Adopted	2018 Proposed	Change from 2017	2019 Proposed	Change from 2017	2020 Proposed	Change from 2019
<b>Low Volume User</b> (30th %tile)	Winter	2.9	\$30.09	\$31.48	\$1.39	\$33.12	\$1.65	\$34.94	\$1.81
	Summer	3.8	\$35.25	\$36.77	\$1.52	\$38.56	\$1.79	\$40.48	\$1.92
	<b>Average</b>	<b>3.2</b>	<b>\$31.81</b>	<b>\$33.24</b>	<b>\$1.43</b>	<b>\$34.94</b>	<b>\$1.70</b>	<b>\$36.79</b>	<b>\$1.85</b>
<b>Median User</b> (50th %tile)	Winter	4.7	\$39.36	\$40.93	\$1.57	\$42.79	\$1.86	\$44.89	\$2.10
	Summer	5.5	\$44.67	\$46.39	\$1.72	\$48.41	\$2.02	\$50.59	\$2.19
	<b>Average</b>	<b>5.0</b>	<b>\$41.13</b>	<b>\$42.75</b>	<b>\$1.62</b>	<b>\$44.66</b>	<b>\$1.91</b>	<b>\$46.79</b>	<b>\$2.13</b>
<b>High Volume User</b>	Winter	9.8	\$65.62	\$67.70	\$2.08	\$70.18	\$2.48	\$73.09	\$2.92
	Summer	13.4	\$96.54	\$99.36	\$2.83	\$102.49	\$3.13	\$106.18	\$3.70
	<b>Average</b>	<b>11.0</b>	<b>\$75.93</b>	<b>\$78.25</b>	<b>\$2.33</b>	<b>\$80.95</b>	<b>\$2.69</b>	<b>\$84.12</b>	<b>\$3.18</b>
<b>Typical 3rd Tier User</b>	Winter	10.3	\$68.20	\$70.33	\$2.13	\$72.86	\$2.54	\$75.86	\$3.00
	Summer	17.6	\$124.00	\$127.42	\$3.41	\$131.13	\$3.71	\$135.63	\$4.49
	<b>Average</b>	<b>12.7</b>	<b>\$86.80</b>	<b>\$89.36</b>	<b>\$2.56</b>	<b>\$92.28</b>	<b>\$2.93</b>	<b>\$95.78</b>	<b>\$3.50</b>

**Note:** All bill impacts are for in-city customers and assume a ¾" meter.

### 5.2.1. Residential Rate Structure

Residential customers pay a fixed base service charge plus a commodity rate. The commodity rate is a single rate in the off-peak season (September 16 – May 15) and a three-tiered rate structure in the peak season (May 16 – September 15).

#### Base Service Charge

The base service charge is a fixed monthly fee which varies by water meter size. This charge is structured to reflect that some costs are not related to the volume of water used. The cost differential, or progression, between different meter sizes is based on 1) annualized costs, by meter size, for meter maintenance, testing, repair, replacement and service renewal; and 2) annual customer service costs. The progression used in this proposal is based on data from the 2009-2011 rate study.

#### Commodity Rate

Residential commodity rates are seasonal, with tiered peak (May 16 – September 15) rates and uniform off-peak (September 16 – May 15) rates. Peak season rates are higher than off-peak rates and tiered for residential customers to provide a disincentive for wasteful summer water usage.

Peak residential commodity rates consist of three tiers associated with differing usage volumes: 1) the lowest rate is charged on consumption up to five ccf/month; 2) the next 13 ccf/month (six to 18 ccf) is charged a higher rate; and 3) the highest rate is charged on consumption above 18 ccf/month.

Historically, one out of fifteen residential customers has some consumption at the third-tier level each year. In the past, the City has implemented a third-tier on a temporary basis to discourage water use under drought conditions. This tier became a permanent feature of the water rate structure in 2002 in response to the legal requirement of initiative I-63<sup>6</sup>. This rate study holds constant third-tier rates through 2020.

### 5.2.2. Residential Increase

This study includes increases in residential commodity rates and three-quarter-inch meter base service charges. The residential rate schedule for inside city customers is presented in **Table 5-3**.

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<sup>6</sup> In October 2001, the Mayor and City Council adopted City of Seattle Ordinance No. 120532, otherwise known as I-63 Settlement Ordinance (I-63 SO). This ordinance established various measures designed to promote water conservation, including the creation of the "Everyone Can Conserve" program to fund water conservation in low-income housing. This ordinance also established the requirement for a residential summer peak use third block to be charged on residents and businesses that use extraordinary amounts of water.

**Table 5-3  
 Proposed Residential Rates**

	<b>Current Rate</b>	<b>2018 Rate</b>	<b>2019 Rate</b>	<b>2020 Rate</b>
<b><u>Commodity</u></b>				
<b>Off-Peak (\$/ccf)</b>	\$5.15	\$5.25	\$5.37	\$5.53
<b>Peak (\$/ccf)</b>				
Up to 5 ccf/mo	\$5.29	\$5.40	\$5.53	\$5.68
Next 12 ccf/mo	\$6.54	\$6.68	\$6.82	\$7.01
Above 18 ccf/mo	\$11.80	\$11.80	\$11.80	\$11.80
<b><u>Base Service Charge</u></b>				
<b>3/4 inch</b>	\$15.15	\$16.25	\$17.55	\$18.90
<b>1 inch</b>	\$15.60	\$16.75	\$18.10	\$19.50
<b>1 1/2 inch</b>	\$24.10	\$25.85	\$27.90	\$30.05
<b>2 inch</b>	\$26.65	\$28.60	\$30.90	\$33.30
<b>3 inch</b>	\$98.80	\$105.95	\$114.45	\$123.25
<b>4 inch</b>	\$141.50	\$151.80	\$163.90	\$176.55

**Note:** All rates above are in-city.

In 2018, 2019, and 2020, residential meter charges will go up 7.3 percent, 8.0 percent and 7.7 percent, respectively, per year. Currently, rates are aligned in a cost progression based on meter size, with the exception of the three-inch meter. The current three-inch charge is below the cost progression; however, the percentage increases are matched to that of the three-quarter inch meter for this rate period in order to limit customer impact.

Commodity rates are increasing less than meter rates. Off-peak consumption rates are proposed to increase 1.9 percent, 2.3 percent, and 3.0 percent in 2018, 2019, and 2020, respectively. Peak rates are increasing similar percentages each year, with the exception that the third tier is not increasing in either year.

### **5.2.3. Residential Sub-Classes**

The majority of Seattle Public Utilities' residential customers live within City limits (about 151,140 accounts). However, SPU also directly provides water service to about 10,680 residential customers in the City of Shoreline and City of Lake Forest Park, and 4,560 other residential customers who reside outside of City of Seattle boundaries. Each of these residential customer groups, or sub-classes, pay a different rate due to differences in cost of service and/or historic agreements governing these relationships. In addition, master metered residential developments (MMRD) comprise another residential sub-class with its own distinct rates.

#### **Outside City Residential Rates (except Shoreline and Lake Forest Park)**

SPU sets the base meter and commodity rates for SPU customers residing outside of Seattle City Limits at 14 percent greater than in-city rates. Certain characteristics of these areas increase the cost of service, including lower-density development and topography which limits the use of gravity fed systems. Both factors cause higher capital and operating costs (longer water mains, more pumping) per unit of water delivered. In addition, field crews, meter readers, inspectors, and other employees, along



with vehicles and equipment, must travel farther to work on parts of the system that serve outside city customers.

Outside-City residential rates are found in **Appendix C**.

#### City of Shoreline/City of Lake Forest Park Residential Rates

SPU sets the base meter and commodity rates for SPU customers residing in Shoreline and Lake Forest Park approximately 21 percent higher than in-city rates. This rate surcharge is based on the 14 percent out-of-city surcharge (discussed above) plus an additional six percent to cover City of Shoreline and City of Lake Forest Park franchise fees.

The Cities of Shoreline and Lake Forest Park charge SPU franchise fees on the water service SPU provides within their boundaries. Each city's franchise fee is set at six percent of revenue. All the revenues from this franchise fee are paid to the City of Shoreline and City of Lake Forest Park, and neither Seattle nor any water customer outside Shoreline and Lake Forest Park receives a benefit from the associated revenues.

The Shoreline franchise fee was enacted in 1999. The Lake Forest Park franchise agreement has been in effect since November 2009.

Shoreline and Lake Forest Park residential rates are found in **Appendix C**.

#### Master-Metered Residential Development Rates

These rates apply to residential developments with master meters of one and a half-inch or larger which operate and maintain their own distribution systems on private property. The water service to these developments primarily serves single-family detached residences on at least two separate legal parcels.

A separate rate structure was established for MMRD customers in 1995, with residential rates applying in the peak season and an escalated general service rate applying in the off-peak season. This rate structure recognizes the fact that MMRDs, although considered general service habitations, experience peak irrigation demands similar to those of residential customers. The off-peak (and second-tier peak) commodity rates for residential and general service were brought in sync in 2008, and therefore, MMRD rates are currently identical to residential rates. At present, all MMRD customers reside in Shoreline and pay Shoreline residential rates.

Certain Master-Metered Residential Developments are eligible to classify as water systems by the State of Washington. Those that have achieved that designation, and pay State Public Utility Tax on their revenue are eligible for a lower rate from SPU. SPU does not pay State Public Utility Tax on revenues from those customers.

MMRD rates are found in **Appendix C**.

### 5.2.4. Utility Discount Program

The City assists qualified low-income customers with their water bills by providing a 50 percent credit on their utility bills, one of the most generous assistance policies in the nation. Income guidelines vary based on the number of people in the household, monthly income, and annual income. Income limits are updated every January and are based on 70 percent of the state median income. In an effort to ensure utilization by eligible residents, Seattle Housing Authority auto-enrolls its eligible customers in SPU’s discount program.

Currently, about 27,500 water customers receive a utility discount. About one-third of these low-income assistance customers receive their credit on their SPU combined utility bill while the other two-thirds receives a credit through their Seattle City Light bill. For customers billed by SPU, the discount cuts their water bill in half. The City Light bill is used as the credit mechanism for customers who do not directly receive an SPU bill, such as customers living in apartment complexes, who typically receive a City Light bill but have utility costs for water, sewer and solid waste included in their rent. These customers receive a fixed dollar credit via their Seattle City Light bill, which approximates the 50 percent discount.

Table 5-4 presents the discounts for 2018, 2019, and 2020.

**Table 5-4  
 Rate Assistance Discounts**

<b>Customer-type</b>	<b>Adopted 2018</b>	<b>Proposed 2019</b>	<b>Proposed 2020</b>
SPU-billed customers	50% Discount	50% Discount	50% Discount
Non-SPU-billed customers			
Single-family (Residential)	\$21.37/month	\$22.33/month	\$23.40/month
Multi-family (Gen. Serv.)	\$12.38/month	\$12.39/month	\$12.78/month

### 5.3. General Service Rate Design

General services accounts represent about 12 percent of total SPU retail water accounts. General Service customers are also broken into three subclasses: in-city customers, Shoreline/Lake Forest Park customers, and other outside-City customers. This section provides additional detail on the components of the general service rate design, the general service rate increase and general service rate subclasses.

The proposed rates will affect general service customer bills to varying degrees depending on the volume of water used. Table 5-5 presents projected bill impacts for a sampling of general service customer types.

**Table 5-5  
 Monthly General Service Bills at Proposed Rates**

Customer Type	Monthly Consumption	2017 Adopted	2018 Proposed	Change from 2017	2019 Proposed	Change from 2018	2020 Proposed	Change from 2019	
<b>Convenience Store</b> (1" meter)	Winter	15.0	\$92.85	\$95.50	\$2.65	\$98.65	\$3.15	\$102.45	\$3.80
	Summer	15.0	\$113.70	\$116.95	\$3.25	\$120.40	\$3.45	\$124.65	\$4.25
	<b>Average</b>	<b>15.0</b>	<b>\$99.80</b>	<b>\$102.65</b>	<b>\$2.85</b>	<b>\$105.90</b>	<b>\$3.25</b>	<b>\$109.85</b>	<b>\$3.95</b>
<b>Small Office Building</b> (2" meter)	Winter	49.9	\$284	\$291	\$7	\$299	\$8	\$309	\$10
	Summer	56.8	\$398	\$408	\$10	\$419	\$10	\$432	\$13
	<b>Average</b>	<b>52.2</b>	<b>\$322</b>	<b>\$330</b>	<b>\$8</b>	<b>\$339</b>	<b>\$9</b>	<b>\$350</b>	<b>\$11</b>
<b>Apartment Bldg (90 units)</b> (3" meter)	Winter	168.3	\$965	\$989	\$24	\$1,018	\$29	\$1,054	\$36
	Summer	247.3	\$1,716	\$1,758	\$42	\$1,801	\$43	\$1,856	\$56
	<b>Average</b>	<b>194.6</b>	<b>\$1,215</b>	<b>\$1,245</b>	<b>\$30</b>	<b>\$1,279</b>	<b>\$33</b>	<b>\$1,321</b>	<b>\$42</b>
<b>Medium Hotel</b> (6" meter)	Winter	1,180	\$6,253	\$6,384	\$131	\$6,540	\$157	\$6,744	\$204
	Summer	1,559	\$10,369	\$10,600	\$231	\$10,833	\$233	\$11,145	\$311
	<b>Average</b>	<b>1,307</b>	<b>\$7,625</b>	<b>\$7,789</b>	<b>\$164</b>	<b>\$7,971</b>	<b>\$182</b>	<b>\$8,211</b>	<b>\$240</b>
<b>Large Industrial</b> (8" meter)	Winter	3,785	\$19,698	\$20,091	\$394	\$20,562	\$471	\$21,187	\$625
	Summer	2,410	\$15,966	\$16,319	\$352	\$16,673	\$354	\$17,150	\$477
	<b>Average</b>	<b>3,327</b>	<b>\$18,454</b>	<b>\$18,834</b>	<b>\$380</b>	<b>\$19,266</b>	<b>\$432</b>	<b>\$19,841</b>	<b>\$575</b>

**Note:** All bill impacts are for in-city customers.

### 5.3.1. General Service Rate Structure

The general service rate structure is nearly identical to that for residential customers with a base service charge that varies by meter size and peak and off-peak commodity rates. In general, the discussion in Section 5.2.1 on these two rate components is applicable to general service rates.

The primary difference between the two rate structures is that general service customers do not have tiered peak rates<sup>7</sup>; all peak consumption is charged at a single rate. In addition, the general service base service charge progression includes several larger meter rates which are not applicable to residential customers.

SPU will continue with parity between residential and commercial rates as long as each customer class can roughly recover its allocated cost of service and meet policy goals under these circumstances. In this rate proposal rate parity is continued. Proposed 2018-2020 commodity and base service charges for the two classes are virtually identical<sup>8</sup>.

<sup>7</sup> The residential first tier peak rate is intended as a "lifeline" rate and as such does not apply to general service. The third tier peak rate is intended to capture "excessive" or "wasteful" water consumption. Because each general service customer has a different level of consumption, SPU would not be able to set a threshold amount above which consumption is considered excessive.

<sup>8</sup> The general service peak rate is equal to the second tier residential peak rate.

### 5.3.2. General Service Increase

This rate proposal maintains the parity between general service and residential rates described in 5.3.1, with the same increases for general service and residential meter and consumption rates (see 5.2.2 for further detail on proposed increases). With respect to larger meter rates not applicable to residential customers, rates for ten and twelve-inch meters will remain at 2014 levels for the first two years of the proposal, only increasing in 2020. Meters larger than 16-inches will remain at 2014 rate levels for all three years of the proposal. These larger meter rates are proposed to remain constant to recognize that charges are already high relative to smaller meter rates based on a cost analysis.

General service rates are shown in **Table 5-6**:

**Table 5-6  
 General Service Rates**

	<b>Current Rate</b>	<b>2018 Rate</b>	<b>2019 Rate</b>	<b>2020 Rate</b>
<b><u>Commodity</u></b>				
Off-Peak (\$/ccf)	\$5.15	\$5.25	\$5.37	\$5.53
Peak (\$/ccf)	\$6.54	\$6.68	\$6.82	\$7.01
<b><u>Base Service Charge</u></b>				
3/4 inch	\$15.15	\$16.25	\$17.55	\$18.90
1 inch	\$15.60	\$16.75	\$18.10	\$19.50
1 1/2 inch	\$24.10	\$25.85	\$27.90	\$30.05
2 inch	\$26.65	\$28.60	\$30.90	\$33.30
3 inch	\$98.80	\$105.95	\$114.45	\$123.25
4 inch	\$141.50	\$151.80	\$163.90	\$176.55
6 inch	\$174.10	\$186.75	\$201.70	\$217.00
8 inch	\$205.00	\$220.00	\$237.00	\$256.00
10 inch	\$297.00	\$297.00	\$297.00	\$313.00
12 inch	\$402.00	\$402.00	\$402.00	\$422.00
16 inch	\$477.00	\$477.00	\$477.00	\$477.00
20 inch	\$614.00	\$614.00	\$614.00	\$614.00
24 inch	\$771.00	\$771.00	\$771.00	\$771.00

**Note:** All rates above are in-city.

### 5.3.3. General Service Sub-Classes

As with residential accounts, the majority of Seattle Public Utilities' general service customers are located within City limits (about 21,400 accounts). In addition, SPU directly provides water service to 590 general service customers in the City of Shoreline and City of Lake Forest Park, and 390 other general service customers outside of City boundaries. Similar to residential accounts, Shoreline and Lake Forest Park general service customers pay a 21 percent surcharge over the in-city general service meter and commodity rates and other outside-City customers pay a 14 percent surcharge. For further details, see Section 5.2.3.

## 5.4. Private Fire Rate Design

Private fire rates are charged for water service to fire sprinkler systems located on a customer's property. Private fire service customers pay a **flat monthly meter base charge** which varies with meter size. This base fee includes an allowance for water consumption for testing and pump cooling. The monthly allowance is five ccf for meters up to six inches and 10 ccf for meters eight inches and larger. A **penalty charge** (\$20.00/ccf) is assessed on non-fire related consumption in excess of the allowed amounts.

Fire service rates for inside city customers are presented in the **Table 5-7** below.

**Table 5-7**  
**Private Fire Rates**

	<b>Current Rate</b>	<b>2018 Rate</b>	<b>2019 Rate</b>	<b>2020 Rate</b>
<b><u>Commodity</u></b>				
<b>Penalty Charge (\$/ccf)</b>	\$20.00	\$20.00	\$20.00	\$20.00
<b><u>Base Service Charge</u></b>				
<b>2 inch</b>	\$16.25	\$16.25	\$17.25	\$17.75
<b>3 inch</b>	\$21.00	\$21.00	\$22.00	\$23.00
<b>4 inch</b>	\$39.00	\$39.00	\$41.00	\$43.00
<b>6 inch</b>	\$66.00	\$66.00	\$71.00	\$73.00
<b>8 inch</b>	\$105.00	\$105.00	\$112.00	\$115.00
<b>10 inch</b>	\$152.00	\$152.00	\$161.00	\$166.00
<b>12 inch</b>	\$222.00	\$222.00	\$235.00	\$242.00

**Note:** All rates above are in-city.

Private fire service rate schedules by subclass are found in **Appendix C** of this study.

Like other retail customers, Shoreline and Lake Forest Park private fire customers pay a 21 percent differential over the in-city private fire rates and other outside-city customers pay a 14 percent differential. For further details, see Section 5.2.3.

## 5.5. Public Fire Rate Design (Hydrants)

Fire hydrants provide water used by public fire departments to fight fires. Most fire hydrants owned by SPU are located within the City of Seattle. The majority of other hydrants are in retail service areas just north or south of the city limits. In order to more closely associate the cost of providing water for firefighting with the customers that use this water, SPU directly charges local governments an annual fee for public fire service. Charging local governments for the public fire service within their jurisdiction ensures that this portion of revenue requirement is not borne by Seattle's retail customers.

### 5.5.1. Rate Structure

Public fire customers are charged a **flat annual fee** which varies based on the size of main attached to the hydrant. SPU has established two different flat rates for fire service to reflect both service level and

cost differences between four-inch and larger mains<sup>9</sup>. Four-inch mains provide substantially lower fire flows than larger mains. In addition, four-inch mains, while sufficient for domestic service, generally do not meet current state installation standards for mains supporting hydrants. Consequently, all of the cost of over-sizing water mains to provide fire flow, about half of total hydrant service cost, is assigned to larger mains. The remaining costs are shared between two rates based on the number of units, or hydrants. Hydrants connected to larger mains currently account for about 99 percent of all units within the SPU service area.

**5.5.2. Public Fire Rate Increase**

This study proposes increases in each year of the rate study. The rate increase for large-main hydrants is less than the increase for the 4-inch main rate in 2018. The rates increase evenly in 2019 and 2020.

**Table 5-8** presents the proposed 2018, 2019, and 2020 public fire rates.

**Table 5-8  
Public Fire Rates**

	Current Rate	2018 Rate	2019 Rate	2020 Rate
<b>4-inch Mains</b>	\$202.43	\$307.71	\$316.86	\$328.63
<b>Larger Mains</b>	\$491.53	\$554.24	\$570.73	\$591.92

The large 2018 increase is primarily due to an increase in costs associated with maintaining hydrants throughout the water system.

**Table 5-9** presents projected annual bills for public fire customers at proposed rates.

**Table 5-9  
Annual Public Fire Bills at Adopted Rates**

	Hydrant Count			2017 Bill	2018 Bill	2019 Bill	2020 Bill
	4-Inch Mains	Larger Mains	Total				
Seattle	123	17,136	17,259	\$8,447,757	\$9,535,231	\$9,819,044	\$10,183,580
Burien	40	120	160	\$67,081	\$78,817	\$81,162	\$84,176

<sup>9</sup> State requirements for hydrant service have become progressively more stringent over the last century. Four-inch mains were considered sufficient to provide fire flows when originally installed. Now, a minimum of six inches is required. Most areas with both domestic and fire flow demands require a minimum of eight-inch mains.

## APPENDIX A: COST ALLOCATION DETAILS

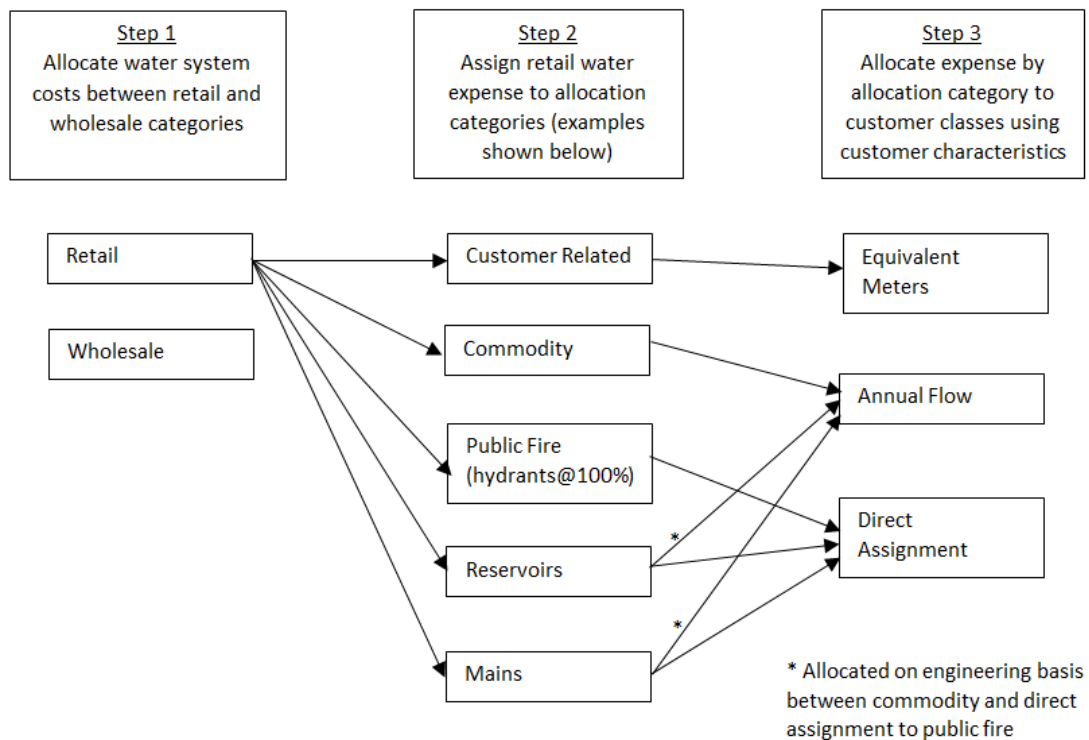
Chapter 4 contained an overview of how the 2018-2020 water revenue requirements were allocated to each cost category. This Appendix provides the detail behind those allocations.

SPU uses imbedded, or historical cost of service from a test year (2015 for this rate study), to determine the percentage of revenue to be assigned to each customer class in the rate-setting period. The costs from the test year are broken into service-based allocation categories that are then allocated to cost categories based on defined customer characteristics. The resulting percentages from the test year are then applied to the 2018-2020 revenue requirements.

Three steps are required to determine the revenue split between test year cost component categories:

1. Allocation of water system expense into retail and wholesale buckets.
2. Allocation of retail water expense between different allocation categories.
3. Allocation of the cost assigned to each allocation category between cost categories.

**Figure A1-1**  
**Assignment of Water System Expense to Cost Component Categories**  
**Allocation Steps**



Prior to launching into the details of the separate steps, however, it is important to provide some context.

### **A1.1. Cost Allocation Context**

The test year cost of service is calculated using a utility-based cost method whereby test year revenue (or total cost) is the sum of three components: O&M expense, depreciation expense, and a return on plant in service. The cost allocation steps described in Sections A1.2 thru A1.4 are applied separately to each of the three cost components. Below is a description of each these components within the context of the current rate study.

**O&M.** Total O&M spending is equal to O&M presented in the test year (2015) Water Fund audited financial statements, excluding debt service, depreciation, and certain accrued expenses.

**Depreciation (use of capital assets).** Total depreciation is equal to the amount presented in the 2015 Water Fund audited financial statements, excluding depreciation on contributed assets (those assets, such as water meters, whose installation was paid for directly by individual customers).

**Return on Assets.** This is the result of applying an “interest rate” (rate-of-return or ROR) to the net book value of plant in service. Plant in service is equal to the amount presented in the 2015 audited financial statements, excluding contributed assets. Two rates of return are used in this cost allocation. “Regional” assets (assets that are shared with the wholesale customers and whose costs are allocated to wholesale – primarily watersheds and transmission assets) use the rate-of-return as defined in the wholesale contracts (6.0 percent in 2015). The rate-of-return on retail assets (i.e., everything that is not regional) is adjusted so that the total rate-of-return is equal to the difference between the adjusted retail service revenue<sup>10</sup> and the sum of O&M and depreciation in the test year. Therefore,

$$\begin{aligned} & \text{(Retail portion of Regional Assets*Regional ROR)} \\ & + \text{(Retail assets*Retail ROR)} \\ & + \text{Retail portion of Depreciation} \\ & + \text{Retail portion of O\&M} \\ & = \text{Adjusted Retail Revenue} \end{aligned}$$

where all values are for the 2015 test year.

The rate-of-return on only retail assets for 2015 is 4.6 percent.

### **A1.2. Step One: Water System Expense Allocation**

The first step is to allocate test year expenses between wholesale and retail. This is similar to the split that is done to determine the wholesale revenue requirement for each year of the rate study.

Both wholesale customers (suburban municipalities and water districts) and Seattle’s direct service retail customers share the cost of the “regional” portion of Seattle’s water system, including facilities such as

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<sup>10</sup> Industry standards allow for adjustments to test periods for known and quantifiable changes. Revenue in 2015, the test year, was significantly above the level necessary to meet all financial policies. The adjustment to 2015 revenue, \$20 million, reduced revenue to the level that just met all financial policy targets.



the watersheds and transmission pipelines. In addition, the system includes certain “subregional” assets, such as the West Seattle and Des Moines pipelines, which serve both Seattle retail customers and wholesale customers in the applicable subregions.

This step begins by assigning O&M and asset costs (depreciation and return on plant) to regional, subregional, and retail buckets. The regional O&M costs are then “grossed up” using various multipliers specified in the contracts to reimburse the Water Fund for additional general and administrative overhead costs not directly included in the regional bucket. The mechanics of this are similar to the G&A allocation used for CIP, including the need to create a corresponding regional credit to avoid counting expenses twice.

The resulting regional costs, subregional costs, and regional credit are then split by annual flows (as per contracts) between wholesale and retail customers. For 2015, 51 percent of regional costs went to wholesale and 49 percent to retail. The 2015 split of all subregional costs was 15 percent to wholesale and 85 percent to retail. The portion of the regional credit that retail receives is the amount it would pay under the contracts as a wholesale customer, so it is 49 percent.

Table **A1-1** presents Seattle’s share of combined O&M, depreciation, and return on asset expense in the 2015 test year.

**Table A1-1**  
**Seattle’s Share of Water System Utility-based Expense (2015)**

	<b>System Expense</b>	<b>Retail Share</b>	
Regional Expense	86,916,644	49.5%	42,982,117
Regional Credit	(32,318,332)	49.5%	(15,982,098)
Sub-regional Expense	4,129,908	84.7%	3,496,867
Retail Expense	113,918,099	100.0%	113,918,099
<b>Total</b>	<b>172,646,319</b>		<b>144,414,985</b>

**A1.3. Step Two: Allocation of Retail Expense to Allocation Categories**

In Step Two, the retail share of each O&M activity and water asset (for depreciation and return on plant allocation) during the test year is assigned to one of seven allocation categories. This is an intermediate step which groups assets and services to then be allocated using customer characteristics (described in section A1.4). **Table A1-2** presents the distribution of actual 2015 retail expense between the various allocation categories.

**Table A1-2  
 2015 Retail Water Expense by Allocation Category**

<b>Allocation Categories</b>	<b>O&amp;M</b>	<b>Depreciation</b>	<b>Return on Plant</b>	<b>Total Retail Expense</b>
Commodity	29,526,834	12,909,204	20,677,295	63,113,334
Accounts	8,456,888	7,255,322	7,756,659	23,468,869
Public Fire	691,190	106,332	215,426	1,012,948
Reservoirs	1,126,189	2,052,576	3,911,698	7,090,464
Mains	1,842,764	2,639,151	5,310,568	9,792,483
Asset Composite	10,182,402	-	-	10,182,402
Overall Composite	21,510,335	10,607,049	(2,362,898)	29,754,486
<b>Total</b>	<b>73,336,603</b>	<b>35,569,635</b>	<b>35,508,747</b>	<b>144,414,985</b>

**A1.4. Step Three: Allocation of Expense by Allocation Category to Cost Component Categories**

In Step Three, each allocation category from Step Two is distributed between the cost component categories. Some of these are fairly straightforward (e.g. commodity is allocated by annual flow) and some are a little more complicated. The details of each assignment follow in **Table A1-3**.

**Table A1-3  
 Allocation Factors for Assignment of Retail Expense  
 To Cost Component Categories**

<b>Allocation Categories</b>	<b>Annual Flow</b>	<b>Equivalent Meters</b>	<b>Direct/ Engineering Basis</b>
Commodity	100.0%		
Accounts		100.0%	
Public Fire			100.0%
Reservoirs	99.7%		0.3%
Mains	59.9%		40.1%
Asset Composite	70.7%	23.7%	5.5%
Overall Composite	72.6%	22.6%	4.8%

**Commodity.** This category is primarily made up of the regional and subregional costs identified in Step One. These costs are assigned to the commodity category because annual flow is what determines the split of costs between wholesale and retail customers.

**Accounts.** This category contains costs such as service replacements and meter testing and repair, which vary by meter size. It also includes customer related expenses which do not vary significantly with water usage or meter size, such as the Water Fund's share of the CCB billing system, communication equipment (Interactive Voice Response) and other IT investments. Costs are allocated using a factor called "equivalent meters" that assigns a higher weight to larger meters. Additional details on equivalent meters are in Section A1.5.

**Public Fire.** These categories include expenses which are directly attributable to public fire service, such as hydrant repair and flow testing

**Reservoirs.** Reservoirs provide a source of water during fires as well as water for domestic purposes.

Their cost is allocated to these uses based on an engineering analysis of the proportion of capacity devoted to each use. Further information on this allocator is in Section A1.6.

**Mains.** Watermains are sized to meet fire flow requirements and domestic demands for water. The cost for this allocation category is split between public fire and annual flow categories based on the proportional share of total installed main cost attributed to fire uses and to domestic uses. Section A1.7 contains a detailed description of this calculation.

**Asset Composite.** This category includes items that support the Water Fund's asset base, such as Maximo and the stage gate process. The allocation among customer characteristics is the average allocation of all previously assigned asset costs.

**Overall Composite.** This category includes costs that support the overall Water Fund, such as Finance and the General Manager/CEO's Office. The allocation among customer characteristics is the average allocation of all costs.

The application of the allocation factors identified in Table A1-2 to the test year (2015) expense by allocation category in Table A1-3 gives us the distribution of actual test year costs between cost component categories, as presented in **Table A1-4** below.

**Table A1-4**  
**Retail Component Cost Allocation**  
**2015 Cost of Service (O&M + Depreciation + Rate-of-Return)**

Allocation Categories	Total Retail Expense	Cost Categories		
		Annual Flow	Equivalent Meters	Direct/ Engineering Basis
Commodity	63,113,334	63,113,334		
Accounts	23,468,869		23,468,869	
Public Fire	1,012,948			1,012,948
Reservoirs	7,090,464	7,069,192		21,271
Mains	9,792,483	5,865,697		3,926,786
Asset Composite	10,182,402	7,202,991	2,417,187	562,224
Overall Composite	29,754,486	21,603,753	6,717,451	1,433,282
<b>Total</b>	<b>144,414,985</b>	<b>104,854,967</b>	<b>32,603,507</b>	<b>6,956,511</b>

These costs are then divided among customer classes based on the characteristics of each customer class. This step is discussed in detail in Sections 4.1 and 4.2.

**A1.5. Calculation of Equivalent Meters Allocator**

Section 4.3 in Chapter 4 discusses the use of the equivalent meters allocator to assign certain customer-service related expense between customer classes.

For customer related expenses, a hybrid allocator was used to reflect that some costs vary with meter size (e.g. meter repair), and some do not (e.g. customer billing). The first step was to calculate the percentage of meters by customer class, with private fire discounted 50% to reflect that these meters are typically secondary meters on a domestic account.

**Table A1-5**  
**Step 1 of Equivalent Meters Calculation - Meters by Customer Class**

	0.75	1	1.5	2	3	4	6	8	10	12	16	20	24	Total	Percentage
Residential	146,741	17,134	1,297	462	1	2	1	1	-	-	-	-	-	165,639	87%
General Service	6,799	5,182	3,710	4,738	486	883	358	123	37	7	-	2	-	22,325	12%
Private Fire @50%	167	1	3	318	14	794	655	367	15	4	-	-	-	2,335	1%
<b>Total</b>	<b>153,707</b>	<b>22,317</b>	<b>5,010</b>	<b>5,518</b>	<b>501</b>	<b>1,679</b>	<b>1,014</b>	<b>491</b>	<b>52</b>	<b>11</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>190,299</b>	<b>100%</b>

Step two is to calculate the percentage of meters per customer class after weighting the meter counts using standard American Water Works Association (AWWA) meter progression ratios by meter size. Similar to step one, the private fire ratios were discounted 50% to reflect that these meters are typically secondary meters on a domestic account.

**Table A1-6**  
**Step 2 of Equivalent Meters Calculation – Weighted Meter Counts by Customer Class**

	0.75	1	1.5	2	3	4	6	8	10	12	16	20	24	Total
Residential Count	146,741	17,134	1,297	462	1	2	1	1	-	-	-	-	-	
Weighting Factor	1.0	1.7	3.3	5.3	10.0	16.7	33.3	53.3	76.7	143	250	325	420	
<b>Residential Weighted Count</b>	<b>146,741</b>	<b>29,128</b>	<b>4,280</b>	<b>2,449</b>	<b>10</b>	<b>33</b>	<b>33</b>	<b>53</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>182,728</b>
General Service Count	6,799	5,182	3,710	4,738	486	883	358	123	37	7	-	2	-	
Weighting Factor	1.0	1.7	3.3	5.3	10.0	16.7	33.3	53.3	76.7	143	250	325	420	
<b>Gen Svc Weighted Count</b>	<b>6,799</b>	<b>8,809</b>	<b>12,243</b>	<b>25,111</b>	<b>4,860</b>	<b>14,746</b>	<b>11,921</b>	<b>6,556</b>	<b>2,838</b>	<b>1,003</b>	<b>-</b>	<b>650</b>	<b>-</b>	<b>95,537</b>
Private Fire Count	333	1	5	635	27	1,588	1,309	734	29	8	-	-	-	
Weighting Factor @50%	0.5	0.9	1.7	2.7	5.0	8.4	16.7	26.7	38.4	72	125	163	210	
<b>Private Fire Weighted Count</b>	<b>167</b>	<b>1</b>	<b>8</b>	<b>1,683</b>	<b>135</b>	<b>13,260</b>	<b>21,795</b>	<b>19,561</b>	<b>1,112</b>	<b>573</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>58,294</b>

**Table A1-7**  
**Step 2 of Equivalent Meters Calculation – Weighted Meter Percentages**

	Total	Percentage
Residential Weighted Count	182,728	54.3%
Gen Svc Weighted Count	95,537	28.4%
Private Fire Weighted Count	58,294	17.3%
<b>Total</b>	<b>336,559</b>	<b>100%</b>

The last step is to average the results of step one and step two. The hybrid allocator produced is used to allocate customer related expenses between customer classes.

**Table A1-8**  
**Equivalent Meters Allocation Percentage Basis**

	Allocation on Meter Count Basis	Allocation on Weighted Basis	Hybrid Allocation
Residential	87.0%	54.3%	<b>70.7%</b>
General Service	11.7%	28.4%	<b>20.1%</b>
Private Fire	1.2%	17.3%	<b>9.3%</b>

**A1.6. Allocation of Reservoirs to Public Fire**

The allocation of reservoirs to public fire was updated for the previous rate study since the reservoir covering projects are nearly complete. (Note that for the rate study, “reservoirs” includes reservoirs, tanks, and standpipes.) From an allocation perspective, there are two types of reservoirs: regional/subregional reservoirs whose costs are shared with wholesale customers and those that are retail only. As discussed in Section 4, the retail portion of regional and subregional assets are considered commodity assets since the wholesale/retail split is determined by consumption. In other words, if a particular retail customer class uses more water, they will cause a higher portion of costs to be allocated to retail customers. Therefore, costs are caused by commodity regardless of the nature of the underlying asset.

For retail only reservoirs, detailed reservoir sizing is used to develop an overall allocation between public fire and commodity. For most reservoirs there is no dedicated fire storage, since water is available to the reservoir under gravity flow. It is only reservoirs that rely on pumped water for refill that have a dedicated amount of storage for public fire. That amount of dedicated storage is determined as 8,000 gpm for 15 minutes (equal to 0.12 MG), which is the response time needed to restore water flow to each of the non-gravity supplied reservoirs by remote start of a diesel pump or by activating a turbine driven pump. **Table A1-9** is based on reservoir data from SPU’s 2013 Water System Plan.

**Table A1-9  
 Reservoir Capacities**

<b>Millions of Gallons (MG)</b>	<b>Capacity</b>	<b>Storage Required</b>
<b>Retail Reservoirs</b>		
Bitter Lake	21.30	N/A
Beacon	50.00	N/A
Lincoln	12.70	N/A
Magnolia	5.50	0.12
Myrtle	5.00	0.12
View Ridge	2.50	N/A
Roosevelt	50.30	N/A
Volunteer	20.50	N/A
<b>Retail Tanks</b>		
Charlestown	1.30	0.12
Queen Anne	1.90	0.12
North Trenton	1.20	N/A
South Trenton	1.20	N/A
Volunteer Park	0.90	0.12
Magnolia Bluff	1.00	N/A
<b>Total</b>	<b>175.30</b>	<b>0.60</b>
<b>Percentage allocated to Public Fire</b>		<b>0.3%</b>

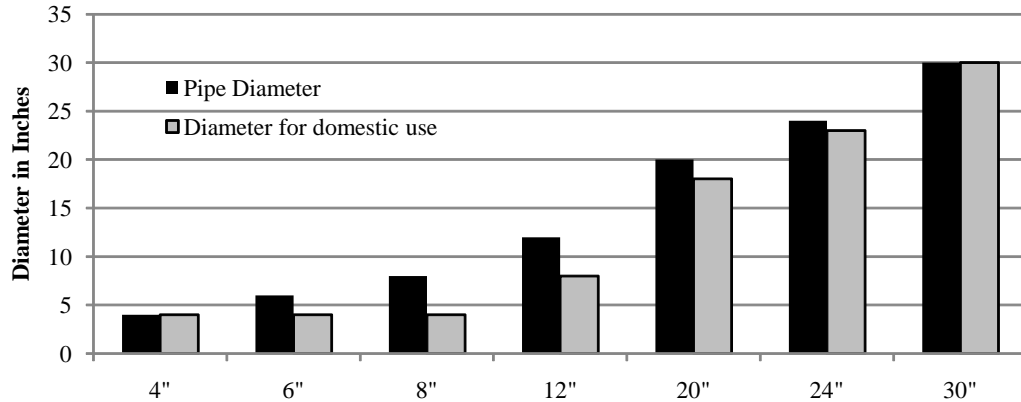
**A1.7. Calculation of Watermains Allocator**

Watermains are sized to meet fire flow requirements and domestic demands for water. In sizing the watermain, the pipe must have sufficient capacity to meet two separate criteria; (i) peak hour domestic demand and (ii) peak day domestic demand + fire flow requirements. For medium and small-size pipes (8 inch diameter or less) the second criteria will be the binding constraint. For larger size pipe (i.e., pipes that are serving very large areas or areas with very dense developments), the first criteria (peak hour demand) will be the binding constraint.

The most common size pipe in Seattle’s system is, by far, an 8 inch diameter pipe. In areas served by 8 inch mains, domestic peak hour flows, i.e., the first criteria, can typically be met with 4 inch mains. The oversizing from 4 inch to 8 inch is needed to meet the second criteria. Taking into account that hydraulic capacity grows exponentially with the diameter of the pipe, this means about 25 percent of the 8 inch

pipe is serving domestic flows and 75 percent is providing fire protection. Pipes smaller than 8 inch were installed on the system when the fire flow requirements were lower than they are today. For this allocation exercise, the cost of 4 inch mains were assigned to domestic service and the cost of 6 inch mains were assigned to public fire protection. For pipes larger than 8 inch, the share of capacity needed for fire flows shrinks until we reach pipes with diameters of 30 inch or more. The graph below shows the relationship between pipe size and fire flow requirements expressed in diameters.

**Figure A1-2**  
**Actual Pipe Diameters Versus Diameter Required for Domestic Use**



Pipe Diameter	4	6	8	12	20	24	30
Diameter for domestic use	4	4	4	8	18	23	30
Capacity for domestic use	100%	44%	25%	44%	81%	92%	100%

The cost of watermains is split between fire protection and domestic uses based on each group’s proportionate share of total watermain asset value. The calculation of this asset value takes into account the shares of hydraulic capacity discussed above. The steps to determining the appropriate allocation for watermain assets are as follows:

1. Estimate net book value by pipe size for all the mains in the system. SPU financial systems track net book value for total water mains, but not by pipe size. For the purposes of this allocation, net book value by pipe size is estimated by applying estimated accumulated depreciation to estimated replacement cost by pipe size. An adjustment factor is then applied in order to adjust each pipe size so that the total estimated net book value equals actual total watermains net book value as of 12/31/15. Estimated replacement cost and by pipe size is determined as follows:

$$\text{Estimated Replacement Cost} = (\$Cost / LF_d) \times (LF_d)$$

Where  $\$Cost / LF_d$  = the replacement cost per lineal feet of a pipe of diameter ‘d,’ and  
 $LF_d$  = the number of lineal feet in the system of pipe of diameter ‘d’ as of 2015.

Using cost indices by year installed, the replacement cost net book value is converted to an estimated original net book value by year installed.

2. Determine cost associated with fire protection service.

Fire Protection Net Book Value =

$\sum (\text{Hydraulic Capacity for Fire}_d) \div (\text{Hydraulic Capacity of Pipe}_d) \times (\text{Net Book Value by Pipe Length})$

3. Determine the proportion of the watermain net book value devoted to fire protection.

Proportion of costs for fire protection =

$(\text{Fire Protection Net Book Value}) \div (\text{Total Net Book Value})$

The percentage share determined in Step Three is then used to assign watermain costs to fire protection. Using the above methodology, the cost share assigned to fire protection for this rate period is 40 percent.



**APPENDIX B: INFORMATIONAL TABLES**

**B1.1. Residential Rate History**

Effective Date:	1/1/09	3/31/09*	1/1/10*	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17
<b>Residential - Inside Seattle</b>									
<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$2.95	\$3.25	\$3.50	\$3.62	\$4.04	\$4.50	\$4.99	\$5.06	\$5.15
Peak 1st Block	\$3.25	\$3.58	\$3.86	\$3.98	\$4.34	\$4.73	\$5.13	\$5.20	\$5.29
Peak 2nd Block	\$3.78	\$4.17	\$4.49	\$4.63	\$5.15	\$5.72	\$6.34	\$6.43	\$6.54
Peak 3rd Block	\$9.64	\$10.62	\$11.44	\$11.80	\$11.80	\$11.80	\$11.80	\$11.80	\$11.80
<u>Meter Charge (\$s/mtr/mo)</u>									
3/4 inch	\$10.60	\$11.68	\$12.56	\$13.00	\$13.25	\$13.50	\$13.75	\$14.15	\$15.15
1 inch	\$10.90	\$12.01	\$13.00	\$13.40	\$13.65	\$13.90	\$14.20	\$14.60	\$15.60
1 1/2 inch	\$16.90	\$18.62	\$19.95	\$20.70	\$21.05	\$21.45	\$21.85	\$22.50	\$24.10
2 inch	\$22.50	\$24.80	\$25.57	\$22.90	\$23.35	\$23.75	\$24.20	\$24.90	\$26.65
3 inch	\$69.10	\$76.15	\$81.88	\$84.70	\$86.35	\$88.00	\$89.65	\$92.25	\$98.80
4 inch	\$99.00	\$109.10	\$117.36	\$121.40	\$123.75	\$126.10	\$128.45	\$132.15	\$141.50
<u>Utility Credit</u>									
Fixed Credit (per month)	\$13.88	\$15.30	\$16.46	\$17.02	\$16.97	\$18.19	\$19.46	\$19.84	\$20.56
<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$1.48	\$1.63	\$1.75	\$1.81	\$2.02	\$2.25	\$2.50	\$2.53	\$2.58
Peak 1st Block	\$1.63	\$1.79	\$1.93	\$1.99	\$2.17	\$2.37	\$2.57	\$2.60	\$2.65
Peak 2nd Block	\$1.89	\$2.08	\$2.25	\$2.32	\$2.58	\$2.86	\$3.17	\$3.22	\$3.27
Peak 3rd Block	\$4.82	\$5.31	\$5.72	\$5.90	\$5.90	\$5.90	\$5.90	\$5.90	\$5.90
Meter Charges (Discount)	50%	50%	50%	50%	50%	50%	50%	50%	50%

\* Includes 10.2% Surcharge

Effective Date:	1/1/09	3/31/09*	1/1/10*	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17
<b>Residential - Outside Seattle</b>									
<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$3.36	\$3.70	\$4.00	\$4.13	\$4.61	\$5.13	\$5.69	\$5.77	\$5.87
Peak 1st Block	\$3.71	\$4.09	\$4.40	\$4.54	\$4.95	\$5.39	\$5.85	\$5.93	\$6.03
Peak 2nd Block	\$4.31	\$4.75	\$5.11	\$5.28	\$5.87	\$6.52	\$7.23	\$7.33	\$7.46
Peak 3rd Block	\$10.99	\$12.11	\$13.04	\$13.45	\$13.45	\$13.45	\$13.45	\$13.45	\$13.45
<u>Meter Charge (\$s/mtr/mo)</u>									
3/4 inch	\$12.10	\$13.33	\$14.33	\$14.80	\$15.10	\$15.40	\$15.70	\$16.15	\$17.25
1 inch	\$12.40	\$13.66	\$14.88	\$15.30	\$15.55	\$15.85	\$16.20	\$16.65	\$17.80
1 1/2 inch	\$19.30	\$21.27	\$22.70	\$23.60	\$24.00	\$24.45	\$24.90	\$25.65	\$27.45
2 inch	\$25.70	\$28.32	\$29.09	\$26.10	\$26.60	\$27.10	\$27.60	\$28.40	\$30.40
3 inch	\$79.00	\$87.06	\$93.34	\$96.60	\$98.45	\$100.30	\$102.20	\$105.15	\$112.65
4 inch	\$113.00	\$124.53	\$133.78	\$138.40	\$141.10	\$143.75	\$146.45	\$150.65	\$161.30
<u>Utility Credit</u>									
Fixed Credit (per month)	\$13.88	\$15.30	\$16.46	\$17.02	\$16.97	\$18.19	\$19.46	\$19.84	\$20.56
<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$1.68	\$1.85	\$2.00	\$2.07	\$2.31	\$2.57	\$2.85	\$2.89	\$2.94
Peak 1st Block	\$1.86	\$2.04	\$2.20	\$2.27	\$2.48	\$2.70	\$2.93	\$2.97	\$3.02
Peak 2nd Block	\$2.16	\$2.37	\$2.56	\$2.64	\$2.94	\$3.26	\$3.62	\$3.67	\$3.73
Peak 3rd Block	\$5.50	\$6.06	\$6.52	\$6.73	\$6.73	\$6.73	\$6.73	\$6.73	\$6.73
Meter Charges (Discount)	50%	50%	50%	50%	50%	50%	50%	50%	50%

\* Includes 10.2% Surcharge

Effective Date:	1/1/09	3/31/09*	1/1/10*	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17
<b>Residential - Shoreline, Lake Forest Park**</b>									
<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$3.58	\$3.95	\$4.25	\$4.39	\$4.90	\$5.46	\$6.05	\$6.14	\$6.25
Peak 1st Block	\$3.94	\$4.34	\$4.67	\$4.83	\$5.26	\$5.74	\$6.22	\$6.31	\$6.42
Peak 2nd Block	\$4.58	\$5.05	\$5.44	\$5.62	\$6.25	\$6.94	\$7.69	\$7.80	\$7.93
Peak 3rd Block	\$11.69	\$12.88	\$13.87	\$14.31	\$14.31	\$14.31	\$14.31	\$14.31	\$14.31
Franchise Charge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<u>Meter Charge (\$s/mtr/mo)</u>									
3/4 inch	\$12.90	\$14.22	\$15.21	\$15.80	\$16.05	\$16.35	\$16.70	\$17.15	\$18.35
1 inch	\$13.20	\$14.55	\$15.76	\$16.30	\$16.55	\$16.85	\$17.20	\$17.70	\$18.90
1 1/2 inch	\$20.50	\$22.59	\$24.24	\$25.10	\$25.55	\$26.00	\$26.50	\$27.30	\$29.25
2 inch	\$27.30	\$30.08	\$30.97	\$27.80	\$28.30	\$28.80	\$29.35	\$30.20	\$32.30
3 inch	\$83.80	\$92.35	\$99.29	\$102.70	\$104.70	\$106.70	\$108.70	\$111.90	\$119.80
4 inch	\$120.10	\$132.35	\$142.38	\$147.20	\$150.10	\$152.95	\$155.80	\$160.25	\$171.60
<u>Utility Credit</u>									
Fixed Credit (per month)	\$13.88	\$15.30	\$16.46	\$17.02	\$16.97	\$18.19	\$19.46	\$19.84	\$20.56
<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$1.79	\$1.97	\$2.13	\$2.20	\$2.45	\$2.73	\$3.03	\$3.07	\$3.13
Peak 1st Block	\$1.97	\$2.17	\$2.34	\$2.42	\$2.63	\$2.87	\$3.11	\$3.16	\$3.21
Peak 2nd Block	\$2.29	\$2.52	\$2.72	\$2.81	\$3.13	\$3.47	\$3.85	\$3.90	\$3.97
Peak 3rd Block	\$5.85	\$6.44	\$6.94	\$7.16	\$7.16	\$7.16	\$7.16	\$7.16	\$7.16
Meter Charges (Discount)	50%	50%	50%	50%	50%	50%	50%	50%	50%
<u>Master Metered Residential Development</u>									
<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$3.58	\$3.95	\$4.25	\$4.39	\$4.90	\$5.46	\$6.05	\$6.14	\$6.25
Peak 1st Block	\$3.94	\$4.34	\$4.67	\$4.83	\$5.26	\$5.74	\$6.22	\$6.31	\$6.42
Peak 2nd Block	\$4.58	\$5.05	\$5.44	\$5.62	\$6.25	\$6.94	\$7.69	\$7.80	\$7.93
Peak 3rd Block	\$11.69	\$12.88	\$13.87	\$14.31	\$14.31	\$14.31	\$14.31	\$14.31	\$14.31
Meter Charges (See above)									

\* Includes 10.2% Surcharge

\*\* Lake Forest Park rates began 3/31/09

**B1.2. General Service Rate History**

Effective Date:	1/1/09	3/31/09*	1/1/10*	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17
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**General Service - Inside Seattle**

<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$2.95	\$3.25	\$3.50	\$3.62	\$4.04	\$4.50	\$4.99	\$5.06	\$5.15
Peak	\$3.78	\$4.17	\$4.49	\$4.63	\$5.15	\$5.72	\$6.34	\$6.43	\$6.54

<u>Meter Charge (\$s/mtr/mo)</u>									
3/4 inch	\$10.60	\$11.68	\$12.56	\$13.00	\$13.25	\$13.50	\$13.75	\$14.15	\$15.15
1 inch	\$10.90	\$12.01	\$13.00	\$13.40	\$13.65	\$13.90	\$14.20	\$14.60	\$15.60
1 1/2 inch	\$16.90	\$18.62	\$19.95	\$20.70	\$21.05	\$21.45	\$21.85	\$22.50	\$24.10
2 inch	\$22.50	\$24.80	\$25.57	\$22.90	\$23.35	\$23.75	\$24.20	\$24.90	\$26.65
3 inch	\$69.10	\$76.15	\$81.88	\$84.70	\$86.35	\$88.00	\$89.65	\$92.25	\$98.80
4 inch	\$99.00	\$109.10	\$117.36	\$121.40	\$123.75	\$126.10	\$128.45	\$132.15	\$141.50
6 inch	\$121.80	\$134.22	\$144.36	\$149.40	\$152.30	\$155.15	\$158.05	\$162.65	\$174.10
8 inch	\$199.00	\$219.30	\$219.30	\$199.00	\$199.00	\$199.00	\$199.00	\$199.00	\$205.00
10 inch	\$297.00	\$327.29	\$327.29	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00	\$297.00
12 inch	\$402.00	\$443.00	\$443.00	\$402.00	\$402.00	\$402.00	\$402.00	\$402.00	\$402.00
16 inch	\$477.00	\$525.65	\$525.65	\$477.00	\$477.00	\$477.00	\$477.00	\$477.00	\$477.00
20 inch	\$614.00	\$676.63	\$676.63	\$614.00	\$614.00	\$614.00	\$614.00	\$614.00	\$614.00
24 inch	\$771.00	\$849.64	\$849.64	\$771.00	\$771.00	\$771.00	\$771.00	\$771.00	\$771.00

**Utility Credit - Inside & Outside (Fixed Credit per month)**

Commercial (Multifamily)	\$7.60	\$8.38	\$9.03	\$9.32	\$10.14	\$11.22	\$12.38	\$12.38	\$12.38
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\* Includes 10.2% Surcharge

Effective Date:	1/1/09	3/31/09*	1/1/10*	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17
<b>General Service - Outside Seattle</b>									
<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$3.36	\$3.70	\$4.00	\$4.13	\$4.61	\$5.13	\$5.69	\$5.77	\$5.87
Peak	\$4.31	\$4.75	\$5.11	\$5.28	\$5.87	\$6.52	\$7.23	\$7.33	\$7.46
<u>Meter Charge (\$s/mtr/mo)</u>									
3/4 inch	\$12.10	\$13.33	\$14.33	\$14.80	\$15.10	\$15.40	\$15.70	\$16.15	\$17.25
1 inch	\$12.40	\$13.66	\$14.88	\$15.30	\$15.55	\$15.85	\$16.20	\$16.65	\$17.80
1 1/2 inch	\$19.30	\$21.27	\$22.70	\$23.60	\$24.00	\$24.45	\$24.90	\$25.65	\$27.45
2 inch	\$25.70	\$28.32	\$29.09	\$26.10	\$26.60	\$27.10	\$27.60	\$28.40	\$30.40
3 inch	\$79.00	\$87.06	\$93.34	\$96.60	\$98.45	\$100.30	\$102.20	\$105.15	\$112.65
4 inch	\$113.00	\$124.53	\$133.78	\$138.40	\$141.10	\$143.75	\$146.45	\$150.65	\$161.30
6 inch	\$139.00	\$153.18	\$164.20	\$170.00	\$173.60	\$176.85	\$180.20	\$185.40	\$198.45
8 inch	\$227.00	\$250.15	\$250.15	\$227.00	\$227.00	\$227.00	\$227.00	\$227.00	\$234.00
10 inch	\$339.00	\$373.58	\$373.58	\$339.00	\$339.00	\$339.00	\$339.00	\$339.00	\$339.00
12 inch	\$458.00	\$504.72	\$504.72	\$458.00	\$458.00	\$458.00	\$458.00	\$458.00	\$458.00
16 inch	\$544.00	\$599.49	\$599.49	\$544.00	\$544.00	\$544.00	\$544.00	\$544.00	\$544.00
20 inch	\$700.00	\$771.40	\$771.40	\$700.00	\$700.00	\$700.00	\$700.00	\$700.00	\$700.00
24 inch	\$879.00	\$968.66	\$968.66	\$879.00	\$879.00	\$879.00	\$879.00	\$879.00	\$879.00
<b>Utility Credit - Inside &amp; Outside (Fixed Credit per month)</b>									
Commercial (Multifamily)	\$7.60	\$8.38	\$9.03	\$9.32	\$10.14	\$11.22	\$12.38	\$12.38	\$12.38

\* Includes 10.2% Surcharge

**General Service - Shoreline, City of Lake Forest Park\*\***

<u>Commodity Rate (per ccf)</u>									
Off-Peak	\$3.58	\$3.95	\$4.25	\$4.39	\$4.90	\$5.46	\$6.05	\$6.14	\$6.25
Peak	\$4.58	\$5.05	\$5.44	\$5.62	\$6.25	\$6.94	\$7.69	\$7.80	\$7.93
Franchise Charge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<u>Meter Charge (\$s/mtr/mo)</u>									
3/4 inch	\$12.90	\$14.22	\$15.21	\$15.80	\$16.05	\$16.35	\$16.70	\$17.15	\$18.35
1 inch	\$13.20	\$14.55	\$15.76	\$16.30	\$16.55	\$16.85	\$17.20	\$17.70	\$18.90
1 1/2 inch	\$20.50	\$22.59	\$24.24	\$25.10	\$25.55	\$26.00	\$26.50	\$27.30	\$29.25
2 inch	\$27.30	\$30.08	\$30.97	\$27.80	\$28.30	\$28.80	\$29.35	\$30.20	\$32.30
3 inch	\$83.80	\$92.35	\$99.29	\$102.70	\$104.70	\$106.70	\$108.70	\$111.90	\$119.80
4 inch	\$120.10	\$132.35	\$142.38	\$147.20	\$150.10	\$152.95	\$155.80	\$160.25	\$171.60
6 inch	\$148.00	\$163.10	\$175.22	\$181.00	\$184.70	\$188.15	\$191.70	\$197.25	\$211.15
8 inch	\$241.00	\$265.58	\$265.58	\$241.00	\$241.00	\$241.00	\$241.00	\$241.00	\$249.00
10 inch	\$360.00	\$396.72	\$396.72	\$360.00	\$360.00	\$360.00	\$360.00	\$360.00	\$360.00
12 inch	\$488.00	\$537.78	\$537.78	\$488.00	\$488.00	\$488.00	\$488.00	\$488.00	\$488.00
16 inch	\$578.00	\$636.96	\$636.96	\$579.00	\$579.00	\$579.00	\$579.00	\$579.00	\$579.00
20 inch	\$745.00	\$820.99	\$820.99	\$745.00	\$745.00	\$745.00	\$745.00	\$745.00	\$745.00
24 inch	\$935.00	\$1,030.37	\$1,030.37	\$935.00	\$935.00	\$935.00	\$935.00	\$935.00	\$935.00
<u>Utility Credit - Inside &amp; Outside (Fixed Credit per month)</u>									
Commercial (Multifamily)	\$7.60	\$8.38	\$9.03	\$9.32	\$10.14	\$11.22	\$12.38	\$12.38	\$12.38

\* Includes 10.2% Surcharge

\*\* Lake Forest Park rates began 3/31/09

**B1.3. Wholesale Rate History**

Effective Date:	1/1/07	1/1/08	1/1/09	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15
<b>Full and Partial Contracts</b>									
<b>Commodity Rate (per ccf)</b>									
Off-Peak	\$1.03	\$1.04	\$1.14	\$1.15	\$1.16	\$1.52	\$1.53	\$1.53	\$1.42
Peak	\$1.59	\$1.60	\$1.77	\$1.77	\$1.79	\$2.26	\$2.26	\$2.27	\$2.10
Growth Charge	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60	\$0.00	\$0.00	\$0.00	\$0.00
<b>Demand Charge</b> (\$/1000 gals of deficient storage)	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00
<b>One Time New Service Fee (\$s/mtr)</b>									
3/4 inch	\$713	\$713	\$713	\$713	\$783	\$783			
1 inch	\$1,426	\$1,426	\$1,426	\$1,426	\$1,566	\$1,566			
1 inch and smaller							\$877	\$936	\$936
1 1/2 inch	\$3,565	\$3,565	\$3,565	\$3,565	\$3,915	\$3,915	\$3,915	\$4,180	\$4,180
2 inch	\$5,704	\$5,704	\$5,704	\$5,704	\$6,264	\$6,264	\$6,264	\$6,688	\$6,688
3 inch	\$15,686	\$15,686	\$15,686	\$15,686	\$17,226	\$17,226	\$17,226	\$18,392	\$18,392
4 inch	\$22,103	\$22,103	\$22,103	\$22,103	\$24,273	\$24,273	\$24,273	\$25,916	\$25,916
6 inch	\$47,058	\$47,058	\$47,058	\$47,058	\$51,678	\$51,678	\$51,678	\$55,176	\$55,176
8 inch	\$79,856	\$79,856	\$79,856	\$79,856	\$87,696	\$87,696	\$87,696	\$93,632	\$93,632
10 inch	\$120,497	\$120,497	\$120,497	\$120,497	\$132,327	\$132,327	\$132,327	\$141,284	\$141,284
12 inch	\$169,694	\$169,694	\$169,694	\$169,694	\$186,354	\$186,354	\$186,354	\$198,968	\$198,968
16 inch	\$169,694	\$169,694	\$169,694	\$169,694	\$186,354	\$186,354	\$186,354	\$198,968	\$198,968
20 inch	\$169,694	\$169,694	\$169,694	\$169,694	\$186,354	\$186,354	\$186,354	\$198,968	\$198,968
24 inch	\$169,694	\$169,694	\$169,694	\$169,694	\$186,354	\$186,354	\$186,354	\$198,968	\$198,968

**B1.4. Private Fire Rate History**

Effective Date:	1/1/09	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17
<b>Volume (Penalty) Rate per ccf</b>								
Inside	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00
Outside	\$22.80	\$22.80	\$22.80	\$22.80	\$22.80	\$22.80	\$22.80	\$22.80
Shoreline, Lake Forest Park	\$24.30	\$24.30	\$24.30	\$24.30	\$24.30	\$24.30	\$24.30	\$24.30
<b>Meter Charge (\$s/mtr/mo)</b>								
<b>Inside Seattle</b>								
2 inch	\$15.40	\$15.40	\$15.40	\$15.40	\$15.40	\$15.40	\$16.00	\$16.25
3 inch	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$21.00	\$21.00
4 inch	\$37.00	\$37.00	\$37.00	\$37.00	\$37.00	\$37.00	\$38.00	\$39.00
6 inch	\$63.00	\$63.00	\$63.00	\$63.00	\$63.00	\$63.00	\$65.00	\$66.00
8 inch	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$104.00	\$105.00
10 inch	\$144.00	\$144.00	\$144.00	\$144.00	\$144.00	\$144.00	\$150.00	\$152.00
12 inch	\$210.00	\$210.00	\$210.00	\$210.00	\$210.00	\$210.00	\$218.00	\$222.00
<b>Outside Seattle</b>								
2 inch	\$18.00	\$18.00	\$18.00	\$18.00	\$18.00	\$18.00	\$18.00	\$19.00
3 inch	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$24.00	\$24.00
4 inch	\$42.00	\$42.00	\$42.00	\$42.00	\$42.00	\$42.00	\$43.00	\$44.00
6 inch	\$72.00	\$72.00	\$72.00	\$72.00	\$72.00	\$72.00	\$74.00	\$75.00
8 inch	\$114.00	\$114.00	\$114.00	\$114.00	\$114.00	\$114.00	\$119.00	\$120.00
10 inch	\$164.00	\$164.00	\$164.00	\$164.00	\$164.00	\$164.00	\$171.00	\$173.00
12 inch	\$239.00	\$239.00	\$239.00	\$239.00	\$239.00	\$239.00	\$249.00	\$253.00
<b>Shoreline, Lake Forest Park</b>								
2 inch	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$20.00
3 inch	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	\$25.00	\$25.00
4 inch	\$45.00	\$45.00	\$45.00	\$45.00	\$45.00	\$45.00	\$46.00	\$47.00
6 inch	\$76.00	\$76.00	\$76.00	\$76.00	\$76.00	\$76.00	\$79.00	\$80.00
8 inch	\$121.00	\$121.00	\$121.00	\$121.00	\$121.00	\$121.00	\$126.00	\$127.00
10 inch	\$175.00	\$175.00	\$175.00	\$175.00	\$175.00	\$175.00	\$182.00	\$184.00
12 inch	\$255.00	\$255.00	\$255.00	\$255.00	\$255.00	\$255.00	\$264.00	\$269.00



**B1.5. Public Fire Rate History**

Effective Date:	1/1/09	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17
Hydrants on 4 inch Mains	\$162.55	\$173.12	\$194.80	\$198.03	\$213.17	\$230.48	\$197.67	\$202.43
Hydrants on 6 inch and larger mains	\$325.00	\$346.12	\$389.48	\$412.56	\$444.11	\$480.16	\$479.96	\$491.53

**B1.6. Average System Rate Increase History**

Effective Date	Rate Increase
May 16, 2001	5.9%
July 16, 2001	3rd Tier Adopted
January 1, 2002	5.6%
September 16, 2002	14.5%
January 1, 2004	10.6%
January 1, 2005	0.2%
June 1, 2006	0.8%
January 1, 2007	4.6%
January 1, 2008	5.9%
January 1, 2009	11.7%
March 31, 2009*	6.9%
January 1, 2010	9.3%
January 1, 2011**	0.6%
January 1, 2012	9.9%
January 1, 2013	9.7%
January 1, 2014	3.4%
January 1, 2015	-1.9%
January 1, 2016	2.5%
January 1, 2017	2.6%

\* Temporary surcharge to cover costs related  
 to *Lane v. City of Seattle, 2008*

\*\* Expiration of surcharge

**B1.7. Historical Financial Performance**

	Target	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Actual 2013	Actual 2014	Actual 2015	Actual 2016
Net Income (\$1,000's)	positive	5,871	709	1,797	20,666	28,191	31,505	38,149	43,327
Debt Service Coverage	1.7x	1.64	1.59	1.48	1.70	1.86	1.93	1.87	1.78
Cash Financing of the Capital Program	20%*	16.2%	21.8%	28.5%	59.4%	60.9%	65.8%	62.8%	57.8%
from Rate Revenues		10.0%	18.3%	24.7%	53.3%	46.7%	57.7%	52.3%	43.9%
from Contributions in Aid of Construction		6.1%	3.2%	3.7%	6.0%	14.2%	8.1%	10.5%	14.0%
from Bonneville Power Administration Account		0.1%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Year-End Operating Cash (\$1,000's)	varies**	8,194	8,434	7,224	12,373	29,046	43,516	42,349	39,106
Revenue Stabilization Fund Deposit (Withdrawal) (\$1,000)		0	(3,000)	(1,553)	3,354	7,000	8,172	7,000	5,266

\* Current revenues should be used to finance no less than 15% of the CIP in any one year, and not less than 20% in each rate proposal

\*\* Year-End Operating Cash Target is 1/12th of the current year's operating expenses

**B1.8. Actual, Projected and Adopted Revenues**

Revenue Source	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Actual 2013	Actual 2014	Actual 2015	Actual 2016	Projected 2017
Retail Water Sales	130,272,378	136,442,800	137,382,036	152,606,122	168,125,837	179,935,318	187,059,278	184,888,041	188,543,828
Wholesale Water Sales	48,280,764	44,830,234	43,750,260	49,524,873	55,114,897	52,808,240	51,173,206	52,080,701	53,594,515
Facilities Charges	173,259	242,420	280,830	450,225	911,238	839,024	1,042,048	979,124	911,239
Water Service for Fire Protection	5,670,084	5,958,484	6,681,034	7,186,677	7,761,828	8,291,984	8,438,523	8,701,917	8,873,980
Tap Fees	5,263,816	2,854,564	2,873,282	4,689,647	8,011,918	6,945,165	8,773,884	7,837,010	6,663,516
Other Operating Revenues	1,709,287	1,874,959	2,082,235	2,371,057	2,668,016	2,298,495	2,490,395	2,142,686	2,385,592
Build America Bond Interest Income	0	2,194,649	2,135,334	2,135,334	1,800,443	1,980,701	1,983,904	1,990,132	1,987,997
Rentals--Non-City	429,576	394,820	520,153	510,641	604,773	557,828	632,895	594,819	600,720
Other Non-Operating Revenue	3,719,589	385,003	555,324	305,831	467,886	442,881	845,458	412,435	379,124
Capital Grants and Contributions	3,154,167	1,605,384	2,000,987	5,451,204	5,616,744	4,262,289	9,008,689	11,037,774	4,839,712
Operating Grants	2,001,339	539,643	434,981	0	803,255	181,620	0	0	0
Transfers from Construction Fund	67,705,678	47,284,391	39,165,888	25,499,622	14,000,000	18,000,017	35,655,991	36,093,601	39,388,315
Withdrawal from Redemption Fund	93,000,000	0	0	0	0	0	0	0	0
Investment Income (See Construction Fund)	0	0	0	0	0	0	0	0	0
Public Works Loan Proceeds	3,000,000	9,000,000	0	0	1,413,000	0	7,600,000	3,562,389	3,562,389
Proceeds on sale of capital assets	4,726,259	0	0	0	0	0	0	0	0
Inventory Purchased by SDOT	732,191	708,330	689,294	458,601	702,680	771,241	0	0	0
Op Transfer In - Rev Stab Subfund	0	3,000,000	1,522,974	-3,354,239	-7,000,000	-8,171,712	-7,000,000	-5,265,660	8,300,000
Op Transfer In - Rev Stab Subfund - BPA Acct	1,099,162	680,000	100,000	0	0	0	0	0	0
Call Center Reimbursement from SCL	1,653,722	1,637,727	1,510,299	1,514,804	1,514,804	1,704,802	0	0	2,060,070
GF Reimb Abandoned Vehicles	48,893	52,940	50,317	0	0	0	58,450	59,619	59,619
Reimbursement for NS activities	734,409	39,136	46,247	35,868	257,062	128,009	292,949	129,355	137,852
GF Lane Related Payments	10,246,113	0	0	0	0	0	0	0	0

**B1.9. Actual and Projected Operations Expenditures**

	<b>Actual 2009</b>	<b>Actual 2010</b>	<b>Actual 2011</b>	<b>Actual 2012</b>	<b>Actual 2013</b>	<b>Actual 2014</b>	<b>Actual 2015</b>	<b>Actual 2016</b>	<b>Projected 2017</b>
Branch O&M *	92,782,282	77,398,222	78,032,153	82,257,166	89,696,040	92,028,663	98,517,597	101,080,197	117,562,578
Taxes	34,326,595	36,834,240	31,033,547	34,579,191	38,439,778	40,801,911	43,038,318	42,128,072	41,676,404
Debt Service									
Interest	42,083,605	47,676,183	49,599,029	48,810,640	45,171,328	43,601,158	47,467,084	40,549,603	42,781,460
Principal	122,209,766	27,404,766	29,998,293	33,363,293	33,873,204	34,669,987	38,454,987	42,739,987	41,206,473

\* Includes contracts associated with treatment plants

**APPENDIX C: PROPOSED RATES**

**Effective January 1, 2018**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
Direct Service													
RATE SCHEDULES	Inside City				Outside City				City of Shoreline / City of Lake Forest Park				
	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	MMRD* w/PUT
<b>Commodity Charge (\$/100 Cubic Feet)</b>													
Offpeak Usage (Sept 16-May 15)	\$5.25	\$5.25	\$5.25		\$5.99	\$5.99	\$5.99		\$6.37	\$6.37	\$6.37		\$5.96
Peak Usage (May 16-Sept 15)													
Up to 5 ccf**	\$5.40	\$5.40	\$6.68		\$6.16	\$6.16	\$7.62		\$6.55	\$6.55	\$8.10		\$6.13
Next 13 ccf**	\$6.68	\$6.68	\$6.68		\$7.62	\$7.62	\$7.62		\$8.10	\$8.10	\$8.10		\$7.58
Over 18 ccf**	\$11.80	\$11.80	\$6.68		\$13.45	\$13.45	\$7.62		\$14.31	\$14.31	\$8.10		\$13.39
Usage over base allowance													
Utility Credit (\$/month)	\$21.37		\$12.38		\$21.37		\$12.38		\$21.37		\$12.38		
Demand Charge (\$/1000 gallons of deficient storage)				\$20.00				\$22.80					\$24.30
<b>Base Service Charge (\$/month/meter)</b>													
3/4 inch and less	\$16.25		\$16.25		\$18.55		\$18.55		\$19.70		\$19.70		
1 inch	\$16.75		\$16.75		\$19.10		\$19.10		\$20.30		\$20.30		
1-1/2 inch	\$25.85	\$25.85	\$25.85		\$29.45	\$29.45	\$29.45		\$31.35	\$31.35	\$31.35		\$29.35
2 inch	\$28.60	\$28.60	\$28.60	\$16.25	\$32.60	\$32.60	\$32.60	\$19.00	\$34.70	\$34.70	\$34.70	\$20.00	\$32.50
3 inch	\$105.95	\$105.95	\$105.95	\$21.00	\$120.80	\$120.80	\$120.80	\$24.00	\$128.50	\$128.50	\$128.50	\$25.00	\$120.25
4 inch	\$151.80	\$151.80	\$151.80	\$39.00	\$173.05	\$173.05	\$173.05	\$44.00	\$184.10	\$184.10	\$184.10	\$47.00	\$172.30
6 inch		\$186.75	\$186.75	\$66.00		\$212.90	\$212.90	\$75.00		\$226.50	\$226.50	\$80.00	\$212.00
8 inch		\$220.00	\$220.00	\$105.00		\$251.00	\$251.00	\$120.00		\$267.00	\$267.00	\$127.00	\$250.00
10 inch		\$297.00	\$297.00	\$152.00		\$339.00	\$339.00	\$173.00		\$360.00	\$360.00	\$184.00	\$337.00
12 inch		\$402.00	\$402.00	\$222.00		\$458.00	\$458.00	\$253.00		\$488.00	\$488.00	\$269.00	\$457.00
16 inch		\$477.00	\$477.00			\$544.00	\$544.00			\$579.00	\$579.00		\$542.00
20 inch		\$614.00	\$614.00			\$700.00	\$700.00			\$745.00	\$745.00		\$697.00
24 inch		\$771.00	\$771.00			\$879.00	\$879.00			\$935.00	\$935.00		\$875.00

\* Master Metered Residential Development

\*\* per residence

**Effective January 1, 2019**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
<b>Direct Service</b>													
<b>RATE SCHEDULES</b>	<b>Inside City</b>				<b>Outside City</b>				<b>City of Shoreline / City of Lake Forest Park</b>				
	<b>Residential</b>	<b>MMRD*</b>	<b>Gen Svc</b>	<b>Fire Service</b>	<b>Residential</b>	<b>MMRD*</b>	<b>Gen Svc</b>	<b>Fire Service</b>	<b>Residential</b>	<b>MMRD*</b>	<b>Gen Svc</b>	<b>Fire Service</b>	<b>MMRD* w/PUT</b>
<b>Commodity Charge (\$/100 Cubic Feet)</b>													
<b>Offpeak Usage (Sept 16-May 15)</b>	\$5.37	\$5.37	\$5.37		\$6.12	\$6.12	\$6.12		\$6.51	\$6.51	\$6.51		\$6.09
<b>Peak Usage (May 16-Sept 15)</b>													
<b>Up to 5 ccf**</b>	\$5.53	\$5.53	\$6.82		\$6.30	\$6.30	\$7.77		\$6.71	\$6.71	\$8.27		\$6.28
<b>Next 13 ccf**</b>	\$6.82	\$6.82	\$6.82		\$7.77	\$7.77	\$7.77		\$8.27	\$8.27	\$8.27		\$7.74
<b>Over 18 ccf**</b>	\$11.80	\$11.80	\$6.82		\$13.45	\$13.45	\$7.77		\$14.31	\$14.31	\$8.27		\$13.39
<b>Usage over base allowance</b>													
<b>Utility Credit (\$/month)</b>	\$22.33		\$12.39		\$22.33		\$12.39		\$22.33		\$12.39		
<b>Demand Charge (\$/1000 gallons of deficient storage)</b>				\$20.00				\$22.80					\$24.30
<b>Base Service Charge (\$/month/meter)</b>													
<b>3/4 inch and less</b>	\$17.55		\$17.55		\$20.00		\$20.00		\$21.30		\$21.30		
<b>1 inch</b>	\$18.10		\$18.10		\$20.65		\$20.65		\$21.95		\$21.95		
<b>1-1/2 inch</b>	\$27.90	\$27.90	\$27.90		\$31.80	\$31.80	\$31.80		\$33.85	\$33.85	\$33.85		\$31.70
<b>2 inch</b>	\$30.90	\$30.90	\$30.90	\$17.25	\$35.25	\$35.25	\$35.25	\$20.00	\$37.45	\$37.45	\$37.45	\$21.00	\$35.05
<b>3 inch</b>	\$114.45	\$114.45	\$114.45	\$22.00	\$130.45	\$130.45	\$130.45	\$25.00	\$138.80	\$138.80	\$138.80	\$27.00	\$129.90
<b>4 inch</b>	\$163.90	\$163.90	\$163.90	\$41.00	\$186.85	\$186.85	\$186.85	\$47.00	\$198.75	\$198.75	\$198.75	\$50.00	\$186.00
<b>6 inch</b>		\$201.70	\$201.70	\$71.00		\$229.95	\$229.95	\$81.00		\$244.60	\$244.60	\$86.00	\$228.90
<b>8 inch</b>		\$237.00	\$237.00	\$112.00		\$270.00	\$270.00	\$128.00		\$287.00	\$287.00	\$136.00	\$269.00
<b>10 inch</b>		\$297.00	\$297.00	\$161.00		\$339.00	\$339.00	\$184.00		\$360.00	\$360.00	\$195.00	\$337.00
<b>12 inch</b>		\$402.00	\$402.00	\$235.00		\$458.00	\$458.00	\$268.00		\$488.00	\$488.00	\$285.00	\$457.00
<b>16 inch</b>		\$477.00	\$477.00			\$544.00	\$544.00			\$579.00	\$579.00		\$542.00
<b>20 inch</b>		\$614.00	\$614.00			\$700.00	\$700.00			\$745.00	\$745.00		\$697.00
<b>24 inch</b>		\$771.00	\$771.00			\$879.00	\$879.00			\$935.00	\$935.00		\$875.00

\* Master Metered Residential Development

\*\* per residence

**Effective January 1, 2020**

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
<b>Direct Service</b>													
<b>RATE SCHEDULES</b>	<b>Inside City</b>				<b>Outside City</b>				<b>City of Shoreline / City of Lake Forest Park</b>				
	<b>Residential</b>	<b>MMRD*</b>	<b>Gen Svc</b>	<b>Fire Service</b>	<b>Residential</b>	<b>MMRD*</b>	<b>Gen Svc</b>	<b>Fire Service</b>	<b>Residential</b>	<b>MMRD*</b>	<b>Gen Svc</b>	<b>Fire Service</b>	<b>MMRD* w/PUT</b>
<b>Commodity Charge (\$/100 Cubic Feet)</b>													
Offpeak Usage (Sept 16-May 15)	\$5.53	\$5.53	\$5.53		\$6.30	\$6.30	\$6.30		\$6.71	\$6.71	\$6.71		\$6.28
Peak Usage (May 16-Sept 15)													
Up to 5 ccf**	\$5.68	\$5.68	\$7.01		\$6.48	\$6.48	\$7.99		\$6.89	\$6.89	\$8.50		\$6.45
Next 13 ccf**	\$7.01	\$7.01	\$7.01		\$7.99	\$7.99	\$7.99		\$8.50	\$8.50	\$8.50		\$7.96
Over 18 ccf**	\$11.80	\$11.80	\$7.01		\$13.45	\$13.45	\$7.99		\$14.31	\$14.31	\$8.50		\$13.39
Usage over base allowance													
Utility Credit (\$/month)	\$23.40		\$12.78		\$23.40		\$12.78		\$23.40		\$12.78		
Demand Charge (\$/1000 gallons of deficient storage)				\$20.00				\$22.80					\$24.30
<b>Base Service Charge (\$/month/meter)</b>													
3/4 inch and less	\$18.90		\$18.90		\$21.55		\$21.55		\$22.90		\$22.90		
1 inch	\$19.50		\$19.50		\$22.25		\$22.25		\$23.65		\$23.65		
1-1/2 inch	\$30.05	\$30.05	\$30.05		\$34.25	\$34.25	\$34.25		\$36.45	\$36.45	\$36.45		\$34.10
2 inch	\$33.30	\$33.30	\$33.30	\$17.75	\$37.95	\$37.95	\$37.95	\$20.00	\$40.40	\$40.40	\$40.40	\$22.00	\$37.80
3 inch	\$123.25	\$123.25	\$123.25	\$23.00	\$140.50	\$140.50	\$140.50	\$26.00	\$149.45	\$149.45	\$149.45	\$28.00	\$139.85
4 inch	\$176.55	\$176.55	\$176.55	\$43.00	\$201.25	\$201.25	\$201.25	\$49.00	\$214.10	\$214.10	\$214.10	\$52.00	\$200.40
6 inch		\$217.00	\$217.00	\$73.00		\$247.00	\$247.00	\$83.00		\$263.00	\$263.00	\$89.00	\$246.00
8 inch		\$256.00	\$256.00	\$115.00		\$292.00	\$292.00	\$131.00		\$310.00	\$310.00	\$139.00	\$290.00
10 inch		\$313.00	\$313.00	\$166.00		\$357.00	\$357.00	\$189.00		\$380.00	\$380.00	\$201.00	\$356.00
12 inch		\$422.00	\$422.00	\$242.00		\$481.00	\$481.00	\$276.00		\$512.00	\$512.00	\$293.00	\$479.00
16 inch		\$477.00	\$477.00			\$544.00	\$544.00			\$579.00	\$579.00		\$542.00
20 inch		\$614.00	\$614.00			\$700.00	\$700.00			\$745.00	\$745.00		\$697.00
24 inch		\$771.00	\$771.00			\$879.00	\$879.00			\$935.00	\$935.00		\$875.00

\* Master Metered Residential Development

\*\* per residence